The Power of Peers: Mobile Youth Culture, Homophily and Informal Learning Among a Group of South African Youth

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1. Introduction

"Each new technological epoch brings about a period of instability, which is greeted by both enthusiasm and suspicion. This was true of the advent of the printing press, the telegraph, the telephone and electricity, as it is with computers and computer gaming. Each period therefore requires adjustments in our lived relations with machines and technological processes, which then produce cultures that function through the meanings of these lived relations" (Dovey and Kennedy 2007: 134).

Digital literacies, levels of access and complex infrastructural constraints affect how these new lived relations with machines and technological processes play out in different spheres of society. This study documents young people's experiences of technology in Makhaza, Khayelitsha, a low-income area of Cape Town; originally established as a Black township under Apartheid's racial laws. The aim is to better understand how this group of young South Africans interact with ICTs and with each other by finding out more about their strong tie networks; observing and documenting their behaviour and unique mobile literacies. In Makhaza, economic limitations, gender norms, generational differences and poor education affect the role digital technologies play in the lives of the people living in this community.

"Mobile remains the key platform to bring internet access to populations across Sub-Saharan Africa. There is limited fixed line infrastructure in the region, and where it does exist it is largely unaffordable to local populations" (GSMA, 2015: 27). The focus of this study is to unpack how the Ikamvanites are using their mobile devices. The study reveals how these young people have developed a distinctive mobile youth culture, which centres around offline sharing of media, as well as a largely mobile-centric engagement with the internet and technology more broadly. Given the fact that 94% of households in the area have access to a cell phone and just 10% have a computer in their home (Census, 2011), mobile phones are the major means for people to connect with each other, to access information and participate in the greater digital economy. Internet access in Makhaza is limited to just 32.3% of households (Census, 2011). For a large number (40%) of people, mobile phones are the primary means of accessing the internet.

A drastic decline in the cost of smart handsets has meant that the smartphone has become a much-coveted accessory of "cool" youth, even in the most rural areas and regardless of economic status (Porter, et al, 2016). AMPS data for 2015 shows that young people (aged 15 - 24) across South Africa have greater levels of access to smartphones (67%) than their older counterparts (48% of adults aged 35-49; 21% of adults aged 50 and older). But this is not an entirely accurate representation of the situation in the country's more informal and rural communities. According to Porter et al (2016), the number of learners living in peri-urban and rural areas with services who have access to a smartphone ranges from 55% - 65%. When asked

if they had used a mobile device to access the internet in the last month, this figure dropped to 35%-40%.

An overarching dependence on mobile devices highlights the importance of mobile technology in bridging the access and knowledge gaps that exist in broader society. Across the globe, the ability to access the internet in formal education settings, be it via a PC or mobile phone, has the potential to improve learners' overall learning experience. "Not merely in terms of enabling easier access to information directly relevant to the curriculum, but also in helping to give pupils a voice and agency as they explore their place in the world" (Porter et al, 2016:23). But access to Information and Communication Technologies (ICTs) and the internet at schools is limited.[1] This emphasises the importance and significance of "other" spaces where young people can get online. "Mobile-centric" or "mobile-only" denotes that the participants' primary exposure to ICTs and the internet takes place via mobile devices (Donner and Gitau, 2009). This distinctively mobile-centric mode of internet use reflects their class position and income. Furthermore, these young people have a gendered perception of their own technological interests and knowledge and that of their peers.

Owing to the long-term effects of Apartheid spatial planning, and the limited impact on poor people of post-Apartheid economic changes in society, most low-income youth in South Africa live in neighbourhoods and attend schools that are effectively segregated by race and class. This dissertation will show how young people's class and race-segregated networks are also shaped by gender and age homophily. The principle of homophily suggests that people have a tendency to associate with similar people (Ackland and Shorish, 2014; McPherson, Smith-Lovin and Cook, 2001; Kandel, 1978; Fonseca and Xerez, 2013). These similarities can include anything from age and race to socio-economic status, education level or gender. Given the context of contemporary South Africa, where racial segregation is the background to all social interactions, this study highlights the impact of homophily in peer learning networks, both in relation to age and gender.

For the Makhaza teens that participated in this study, the Ikamva Youth branch at the local library largely fulfils this need. Ikamva Youth is a national non-profit organisation, which aims to empower young South Africans through e-literacy training and career guidance as part of the organisation's after-school tutoring and educational programme (Spaull, 2015). Young people can apply to become an "Ikamvanite" (as Ikamva Youth members term themselves) and gain access to homework assistance, additional educational programmes and learning facilities. Facilities at the Makhaza branch include access to a computer lab at the local library. The

[1] For the purposes of this study, the words "technology" and "ICTs" (Information and Communication Technologies) will be used interchangeably.

mentoring opportunities, tutoring and "paired learning" available at Ikamva Youth provides an environment where youth can learn from more experienced peers and from each other in a more informal setting (Spaull et al, 2012; Spaull, 2015; Olivier, 2012; Skuse and Cousins, 2008). With a limited exposure to ICTs in formal education environments, a focus on the transfer of knowledge in more informal settings provides appropriate context to explore the participants' understanding of technology and ICTs. According to a recent paper by Spaull (2015), in a country where young people living in low income communities are often educationally disadvantaged, programmes like Ikamva Youth make use of tutors to encourage learners to engage in peer-to-peer learning and learn from each other. According to Ikamva Youth director, Joy Olivier (2012), most of the Ikamva Youth tutors are young adults and thus they function as positive role models.

Given their limited access to ICTs and a complete lack of formal education around the internet and various technologies, the study investigates how these young people are learning about technologies from their peers in informal situations. Looking at informal learning networks, this study frames Ikamva Youth as a community of practice that allows participants to connect with people outside of their close social networks. A networked approach to understanding their learning and digital literacies was selected as it revealed who the participants were most likely to learn from, and turn to, when they had questions or needed ICT-related guidance. This approach highlighted the importance of both strong and weak ties. The dissertation will argue that it is through these communities of practice that youth who are being let down by formal schooling are able to engage in situated learning about ICTs. The study will suggest that this situated learning is highly contextual and gendered in nature.

By understanding how the sample is using ICTs - despite infrastructural, access and literacy limitations - one can better target and meet their needs. Unpacking their digital literacy and ICT use illustrates the importance of informal/peer learning networks and their strong and weak interpersonal relationships. Informal learning sees an individual developing an understanding or a skill outside the formal educational institutions, including all unplanned ways people learn about something (Cross, 2011; Livingstone, 1999). Research by Sefton-Green (2004) stresses how digital technologies provide young people with new avenues to learn; particularly outside traditional educational environments. While young people are often engaging via behaviours that are commonly perceived as leisure activities, these behaviours do support learning (Ito et al, 2009). Peer-based learning sees individuals with the same level of understanding learning from each other (Jarvela, 2011).

Much global research around young people and their understanding and use of digital technologies describes young people as the "net generation" or "digital natives" (Tapscott, 2009; Palfrey and Gasser, 2013; Bennet, and Maton, 2010; Prensky, 2001). These notions are

clearly faulty in communities such as Makhaza where the youth are not tech savvy simply by virtue of the fact that they were born into the digital era. Brown and Czerniewicz (2010) debunk the notion of a "net generation" because assuming that everyone born after a certain time automatically has improved ICT knowledge fails to consider the impact of access limitations, poor infrastructure and low literacy. Nonetheless, youth in Makhaza do participate in mobile youth culture, albeit with various restrictions.

The identity young people share by virtue of their "youth" status constitutes common likings, behaviours and values. Particular key characteristics of young people's shared identity are asserted through their mobile and other media preferences and use (Vanden Abeele, 2015; Tjong, Weber and Sternberg, 2003; Buckingham, 2006). Mobile communication functions as an important communication between peers and as a tool for expression and reinforcement; all of which comes together to make a certain age grouping distinctive from other age groups in society (Castells et al, 2009). Within a South African context, a thriving mobile youth culture has emerged despite a lack of access to technology and learning material in formal education environments (Walton, 2014).

Within modern digital peer publics, young people have evolved from being content consumers to producers and distributors; buying into and reinforcing shared ideas, tastes, preferences and a distinct youth culture (Ito et al, 2009). Digital peer publics are spaces where youth can connect and share with other young people via ICTs.

Key Research Questions and Theoretical Framework

This study explored the informal learning practices, networks of importance and mobile device use habits of a group of 18 teenagers living in Khayelitsha, Cape Town. As the study is focused around mobile device use, access to technologies and digital literacies, I explore how these young people are learning about ICTs, what they are learning and who they are most likely to turn to with their technology-related questions. Some of the key research questions include:

What characterises this group's distinct mobile youth culture?

- What are the participants most commonly doing with their mobile phones?
- What are their levels of access to different technologies and the internet?
- What are their media-sharing habits and with whom do they predominantly share media?
- Are there any real or perceived gender/age differences in use and knowledge?

How are participants learning about information and communication technologies (ICTs)?

- Who has taught the participants how to use various technologies?
- What role do peers play in educating the participants about digital literacies?
- To what extent are formal educators teaching the participants about technology?
- What is their understanding of technology careers and how did they learn about these?

How do participants' closest relationships (strong ties) help them to learn about ICTs?

- Which interpersonal relationships do participants consider to be their closest connections?
- In these networks of close ties, who do participants believe knows the most about ICTs?
- How do participants rate their own understanding of ICTs?
- Do any gender and age differences emerge within these networks?

The overall aim of the study was to find out how this group of teens living in a low-income area in Cape Town were using and learning about ICTs. With a particular interest in the intricacies of their social networks, the study set out to unveil what role gender, age and formal and informal settings played in their interactions with digital ICTs, as well as how and what they learned as a result of these interactions. As has been detailed by others in the past (Jenkins, 2006; Kreutzer, 2009; Buckingham, 2005) much of the research around young people's use of technology has focused on PC use, it is important to delve into how mobile phones have enabled young people to express themselves and to share media such as videos, photos and games with their peers. This is particularly relevant in predominantly mobile-centric communities such as Makhaza.

Within this context, the study expresses caution around the relevance of classifying this group as "digital natives" (Palfrey and Gasser, 2013). Rather, it aims to show that they cannot be assumed to be more technically savvy simply by virtue of their date of birth. Thus, understanding these youth cultures, their learning habits and mobile device use patterns offers interesting insights into an under-researched demographic of South African society. In addition, uncovering the challenges and possibilities young people experience by virtue of their socio-economic standing will allow for the development of solutions and platforms that tap into and meet the unique needs of this generation of young South Africans.

Summary of Methodology

The study's participants were drawn from a coding club run by staff and graduate students from the Centre for ICT for Development at the University of Cape Town (UCT), in collaboration with Ikamva Youth. The group of Ikamvanites included nine male and nine female learners who all lived and went to school in Khayelitsha. The group was evenly split between male and

female teens and their ages ranged from 13 – 17. These Ikamvanites were invited to attend a series of coding workshops held in a lab at UCT. These were followed by regular meetings in Makhaza, on Friday afternoons, when coding classes were held in the computer lab at the Nazeema Isaacs Library in Makhaza.

At the start of the study, club members had no prior experience of coding or programming and were selected by Ikamva Youth tutors. Their involvement was based on the students' attendance record at the Ikamva Youth branch – they were simply required to have participated regularly in homework supervision and other after-school activities offered by Ikamva Youth. During the coding workshop at UCT the participants created digital stories using the coding skills they had been taught. They were also given a quiz (shown in Appendix A), which required them to answer questions about their understanding of various technologies and about the activities of the previous week.

Each of these students underwent a semi-structured one-on-one interview after the workshop. These questions are detailed in Appendix B. The participants answered a series of questions about their technology use and levels of access, in addition to being asked to create an ego-centric social network diagram of the most important people in their lives before detailing how much they think these people know about ICTs. This data was analysed using quantitative methods. Given the focus on peer and informal learning, the participants were asked to assess the knowhow of a male and female teacher and to detail what these individuals had taught them about ICTs.

Owing to the method by which we recruited participants, the findings of this study should not be generalised to all young people living in Khayelitsha, or South Africa more broadly. Nonetheless the project does offer a snapshot of the learning networks and technology practices of this particular group.

Limitations of the sample include the fact that in the coding group, the female participants tended to be younger than their male counterparts. This age disparity between young men and the slightly female participants may have affected our findings, in particular participants' prior experience of ICTs, their perceptions of one another and themselves, and the composition of their social networks. Language was another limitation, since Ikamva Youth policy dictates that all classes be conducted in English. The interviewers had limited knowledge of isiXhosa, the first language of most participants. Thus, interviews were also conducted in English, an additional language for almost all participants.

Summary of Content

The study opens with a look at the relevant literature around informal and peer learning, mobile youth culture and homophily. This research examines how the participants are learning about and using technologies, as well as how they are interacting with their peers. Research focusing on communities of practice, technicity, digital literacies and gender and technology also prove highly relevant for the purpose of this study. Given the examination of the participants' content creation practices and sharing of media, digital storytelling and mediated identity research is also explored.

This will be followed by an exploration of the methodological approach employed to answer questions around mobile device use and learning networks. The use of a mixed method approach will be explained, highlighting how both qualitative and quantitative methods proved valuable in order to understand behaviours/perceptions and identify trends.

Three major themes emerge from the data gathered – the popularity of offline sharing, the homophilous nature of peer networks and the power of informal learning. The mobile youth culture of this group of teenagers is dominated by offline sharing habits, which results in a largely mobile-centric understanding of networks. While the participants' overall close social networks were largely skewed female, their peer networks were homophilous. For the most part, formal educators did not play any role in the participants' understanding of technology. Much of their learning about ICTs is acquired in informal settings and is largely mobile-centric in nature.

Having unpacked the ins and outs of this study, some conclusions regarding the significance of the results will be discussed.

2. Youth, ICTs and Informal Learning

"In recent years, digital media and networks have become embedded in our everyday lives and are part of broad-based changes to how we engage in knowledge production, communication and creative expression" (Ito, 2008: vii). While it is no surprise that young people have embraced new technologies, Bers and Noam (2012) suggest that the youth can use these devices to do things better. To experience positive technological development, young people must be "presented with educational opportunities to construct their sense of identity", while having the agency to change themselves and broader society (Bers and Noam, 2012:2). "ICT and digital media have had a major impact on the ways in which children today learn, play and socialise" (Levy, 2011:151).

Weber and Mitchell (2008:27) theorise that digital media function as the "perfect entry points for investigating learning and identity, for it is at least partially through these processes of interacting with technologies (including hardware, software and design) that identities are constructed, deconstructed, shaped, tested and experienced". New media and digital technologies promote the creative process – be it in a written, visual or multimedia format (Sefton-Green, 2004a). These technologies bring creative expression within the reach of ordinary people, democratising cultural production and fostering creativity in young people (Sefton-Green, 2004a). Digital and new media ecologies cause shifts in "peer-to-peer forms of media communication and many-to-many forms of distribution"; creating networks that are largely driven by the "user" or "consumer" of this media (Ito, 2008: viii).

As an example, the sharing of music between peers need no longer happen in the same physical space and the magnitude of content being shared has also changed drastically (Palfrey and Gasser, 2013). Youth have appropriated new technologies in the formation of a digital youth culture in various ways (Sefton-Green, 2004a). Focusing on learning, Ito (2008) notes how new technologies and digital media have expanded understanding around what learning actually means. Similarly, Gee's (2004) theories around games and learning propose that "active" and "critical" engagement is essential to learning. Noting that learning can take place outside of school, Gee (2004) believes good game design principles can teach young people to think critically and problem solve.

A "digital generation" has emerged due to this evolving learning and social landscape (Erstad, 2011:102). While the idea of "digital natives" is well documented by researchers (Tapscott, 2009; Palfrey and Gasser, 2013; Bennet, and Maton, 2010; Prensky, 2001), the stark differences that exist in understanding and use of digital media among young people across countries and cultures must be acknowledged (Erstad, 2011). As a point of reference, the term "digital native" describes the first generation to grow up with ICTs; assuming this generation automatically has

access to digital technologies and the skills required to use them (Prensky, 2001). With this definition in mind, one must remember that levels of access differ greatly depending on location and socio-economic status (Prensky, 2001). Criticisms of digital native research contest that the theory makes broad assertions about an entire generation without considering how gender, levels of access and cultural disparities can cause differences in technoligical aptitude; essentially favouring the technologically proficient (Bennett, Maton and Kervin, 2008). “The discourse on digital natives treats everyday knowledge and academic knowledge as equivalent and therefore assumes that the practices young people engage in everyday settings are unproblematically transferable to educational settings” (Jaffer, 2010:281).

Mobile technology affords youth social gratification, security, convenience and access, while enabling sociability; essentially creating a mobile phone culture (Tjong, Weber and Sternberg, 2003). According to Vanden Abeele (2015) young people can express a collective identity as “youth” through their sharing of behaviours, tastes, styles and values; described as “generational distinctiveness”(Buckingham, 2006). “A central assumption of the mobile youth culture concept is that, today, youths assert generational distinctiveness through their mobile media practices and meanings” (Vanden Abeele, 2015:3). In some countries, exposure to ICTs and the internet has been largely mobile-centric, whereby people are experiencing the internet and technologies through mobile devices rather than PCs (Donner and Gitau, 2009).

Youth culture describes the ideals and shared beliefs determining the behaviour of a specific age grouping so that its characteristics are distinctive from those of other age groups in society (Castells et al, 2009). Ling (2010) questions if these habits and behaviours are just part of a stage of life or if teenagers can actually be described as a new generation of mobile users. According to Castells et al (2009), the mobile phone has become an important tool in communication between peers and youth worldwide are highly appreciative of phones offering “lifestyle” features like a camera (Castells et al 2009). Within a South African context, Walton (2014) suggests that a lack of access to computers and books within formal education settings has led to the development of a thriving mobile youth culture, as young people interact with texts using digital technologies outside of school. Mobile youth culture theories suggest “mobile media guides processes of identity formation, autonomy, and relationship formation that take place during adolescence”. Some (Goggin and Crawford, 2011:257) have cautioned that considering some of these behaviours as “characteristic of teenagers alone” could cause researchers to disregard the cross-generational impact of mobile technologies.

Given the focus of this study, it is essential to understand how ICTs have become embedded into young people’s lives. Understanding how new technologies have changed their consumption and digital media creation habits proves relevant to the questions posed by this

study. All of this culminates around the concept of "mobile youth culture", which is highly relevant to this study due to the theory's focus on how mobile technologies have enabled youth to develop shared identities and habits.

Unpacking Informal Learning

"Informal learning can be defined as any activity involving the pursuit of understanding, knowledge or skill which occurs outside the curricula of educational institutions, or the courses or workshops offered by educational or social agencies" (Livingstone, 1999: 51). "Learning" is used over "education" because this type of knowledge acquisition is done outside of the scope of formal academic institutions (Schugurensky, 2000). Informal learning can be self-directed; which occurs when tasks are undertaken without help from a person labelled as, or considered to be, an educator (Schugurensky, 2000). Incidental informal learning occurs when an individual takes knowledge away from an experience but had no intention of doing so prior to the experience (Schugurensky, 2000). Schugurensky (2000) also cites the role of socialisation in informal learning, which refers to the internalising of things like morals, outlooks or behaviours. One is generally unaware that they have learned something through socialisation practices but can become aware of their learning by later reflecting back on the experience (Schugurensky, 2000).

Successful learning entails networking with the correct people and using these networks to learn about the unknown (Cross, 2011). Informal learning encompasses the unplanned ways people learn about things individually or in a group setting (Cross, 2011). Some use the term informal learning to show that learning occurs outside of traditional educational institutions, while others use it to describe the purpose of the learning (Sefton-Green, 2004). Regardless, use of the terms "formal" or "informal" does not imply that the former is characterised by serious teaching and content, while the latter associated with "fun and games" (Sefton-Green, 2004:6). Much of the research in this area focuses on adult informal learning in the workplace; with minimal work around informal learning among young people (Drotner, Jensen, Schrøder, 2009).

For Coffield (2000), informal learning sparks curiosity, filtering into other aspects of the individual's life. When participation in formal learning is lacklustre, informal learning allows individuals to work toward goals they have set for themselves (Coffield, 2000). When examining informal learning it is essential to consider where the learning takes place (context), how it is arranged, the level of support offered, the purpose of the learning and the type of knowledge being transferred (Drotner, Jensen, Schrøder, 2009). As the use of ICTs in learning becomes more widespread, informal learning theories must address issues around access to resouces such as digital media and ICTs (Colley and Malcolm, 2003).

While it is important to acknowledge the value of informal learning, especially in the context of this research, Hager (1998) stresses the need to frame informal learning in the context of traditional assumptions about formal education. As such, in order for informal knowledge transder to be successful, the learner will need to have certain sets of critical skills and levels of understanding in place; many of which have been transferred via formal education (Hager, 1998). Another possible shortfall of informal learning is a lack of structure and support, as those who are "teaching" are unaware of what different individuals do and do not know (Hager, 1998). Within the context of this study, the participants' reliance on their informal learning networks through their interactions with their peers resulted in gaps in their exposure to, and understanding of, certain ICTs.

"Computers and other aspects of Information and Communication Technologies (ICTs) allow children and young people a wide variety of activities and experiences that can support learning, yet many of these transactions do not take place in traditional educational settings" (Sefton-Green, 2004:4). According to Palfrey and Gasser (2013), parents often worry about how digital natives learn because this they are learning in ways they don't understand. Similarly, teachers worry that they cannot progress at the same pace as the digital natives they are teaching, that their skills are becoming irrelevant and that educational systems aren't keeping up with the rapidly changing digital landscape (Palfrey and Gasser, 2013). While Palfrey and Gasser's (2013) concerns may differ within a rural South African context, the disparities between digital natives and digital immigrants must be acknowledged. Older generations are dubbed "digital immigrants" because they were not born into technology; their initial exposure to digital and networked technologies occurred later in life (Palfrey and Gasser, 2013). Digital natives are believed to develop and experience relationships differently to digital immigrants and engage with information in different ways (Palfrey and Gasser, 2013).

ICTs expose young people to activities that support learning (Sefton-Green, 2004). Understanding informal learning requires focus on how educational institutions, homes and recreational activities all play their part in learning. Sefton-Green (2004) believes children and young people learn with ICTs via behaviours that are typically understood to be leisure activities. Teachers are important in different learning ecologies (Sefton-Green, 2004). Within informal settings, "teachers" are people with no formal training, specific technologies or learning tools (Sefton-Green, 2004). In this regard, informal learning sees a "non-teacher" functioning as a type of "teacher" (Sefton-Green, 2004: 12).

Limited ICT exposure in schools and a lack of digital literacy training in formal educational settings make informal learning theories highly relevant to this study, particularly those documenting the role of digital technologies in informal learning. Learning in informal contexts links to research around legitimate peripheral participation and community of practice

research.

Communities of Practice and Legitimate Peripheral Participation

Learning is more than the acquisition of knowledge. Lave and Wenger (1991) focus on the relationship between social context and learning; questioning how social elements can provide the right environment for learning to occur. This idea of "situated learning" explores social co-participation and questions what social engagements provide the right context for learning to occur (Lave and Wenger, 1991). One of the central principles of situated learning is legitimate peripheral participation. "Legitimate peripheral participation provides a way to speak about relations between newcomers and old-timers and about activities, identities, artefacts and communities of knowledge and practice" (Lave and Wenger, 1991:29). Lave and Wenger's (1991) learning theory focused on apprenticeships; with learning enabling young employees to move from peripheral participation to full participation.

This research (Lave and Wenger, 1991) describes communities of practice as an approach to understanding knowing and learning whereby people who share an interest in something come together to learn about this topic through regular interactions with each other. Within these communities, newcomers gain knowledge about an activity, task or project and develop into more experienced members of the group; knowing how to speak and interact like their fellow group members (Lave and Wenger, 1991). Legitimate peripheral participation theories posit that a newcomer's success within a community of practice is linked to their ability to learn from and observe experts (Lave and Wenger, 1991). By doing so, they witness how their efforts fit in to the greater community (Lave and Wenger, 1991). Conversely, limited exposure to experts results in limited levels of understanding and growth (Lave and Wenger, 1991). The transfer of knowledge need not occur in formal learning environments (Lave and Wenger, 1991). The "peripheral" and "participation" elements of this learning theory are important. It is "peripheral" in that the newcomers are kept on the outskirts, doing peripheral tasks until they are entrusted with more important ones. It is described as "participation" because knowledge is acquired through doing and engaging in the activities within the community of practice (Lave and Wenger, 1991).

In the context of this study, participants are predominantly learning about ICTs from their peers. Understanding the situated context of this learning is essential. For the purpose of this research, situated learning and communities of practice theories provide a good grounding for unpacking the participants' largely homophilous ego-centric social networks. As will be detailed in Chapter 5, the communities of practice within which the participants socialise at Ikamva Youth give rise to peer learning. They also engage in informal learning within their friendship and peer groups.

Peer Learning Networks

"A successful peer education programme transfers knowledge from the hands of experts to lay members of the community, making the educational programme more accessible and less intimidating" (Harrison, Smit and Myer, 2000: 287). For Harrison, Smit and Myer (2000) this strategy promotes healthy debate and engagement with the subject matter, resulting in the development of new collective social norms; rather than attempting to transplant the behaviours and ideals of one group of people on to another.

Peer-based learning is characterised by reciprocal learning practices, which see individuals learning from each other (Jarvela, 2011). Functioning as both a "student" and an "educator", youth have a shared interest in expressing themselves and giving each other feedback (Ito et al, 2009). Peer-based learning occurs in both formal and informal environments. It is not simply categorised by getting people to work in groups (Jarvela, 2011)."Social-behavioural perspectives hypothesise that working together, helping each other and supporting each other's contributions will lead to increased effort, greater learning and more liking of the task" (Jarvela, 2011: 162).

While their level of expertise may vary, the peers are equals and do not have any authority over each other (Boud, Cohen and Sampson, 2014). As "peers" they are negotiating their mutual status as co-participants in a shared networked public (boyd, 2010). According to Eisen (2001: 9), exchanges between peer-learners foster "deeper reflection because it introduces contrasting perspectives, sometimes even generating arguments, about interpretation, meaning and application". When both parties learn from, and with, each other, a degree of reciprocity and shared accountability emerges (Eisen, 2001). One method to promote peer-to-peer collaboration is to have individuals work towards a common goal, with participants only achieving personal success if the entire group is successful (Jarvela, 2011). Within small collaborative groups, peer learning encourages critical thinking and enhances problem-solving skills because learners feel more positive about their experiences, which in turn boosts their self-esteem (Landis, 2000). Learners working with each other develop a level of emotional support and bond with each other (Boud, Cohen and Sampson, 2014). Peer learning partnerships differ from mentorships in that mentorships see inexperienced individuals seeking advice and tutelage from more experienced counterparts (Eisen, 2001).

Boud, Cohen and Sampson (2014) describe technology as a steward in peer learning. But boundaries still exist between what traditionally looks and feels like education and modern practices that can look and feel like socialisation and fun (Ito, 2010). Youth, educators and adults often clash about what constitute legitimate forms of literacy and learning (Ito et al, 2009). For Ito (2010) one must engage with youth peer cultures that exist outside the classroom

to learn how networked media technologies can benefit young people. Ito (2010) also posits that the level of communication and engagement between youngsters occurring within this networked ecosystem involves the shared appropriation of elements of popular culture; they are learning from their peers and making trends their own. “It’s about taking a set of cultural referents that are shared among a peer group and finding an individual voice by using those building blocks and participating in shared sociability and culture” (Ito, 2010:np).

The beauty of peer learning is that commonalities exist between the person imparting the knowledge and the individual they are teaching (Boud, Cohen and Sampson, 2014). “They have faced the same challenges as we have in the same context, they talk to us in our own language and we can ask them what may appear, in other situations, to be silly questions” (Boud, Cohen and Sampson, 2014:1). During his research into ICTs and informal learning, Sefton-Green (2004) found a lack of qualitative studies with a focus on learning and learners in non-traditional settings. As a result, his research was largely focused on ICT use for leisure activities in the home (Sefton-Green, 2004). Sefton-Green (2004:32) found that “products do not need to be ‘educational’ to support learning in practice” and that young people can discover new ways of learning as part of their leisure, play and time at home by utilising new technologies.

Within a South African context, much of the work around peer-based education and learning has focused on HIV/AIDS interventions and prevention strategies (Harrison, Smit and Myer, 2000). The aim is to empower groups of people to take control of their health and habits (Campell and MacPhail, 2002). A peer learning approach, in conjunction with promotion via the mass media, has proven successful in boosting HIV/AIDS awareness and eliciting behaviour change (Harrison, Smit and Myer, 2000). “The successes of HIV prevention initiatives are most likely to be maximised when they are located within the broader community and social contexts that are enabling and supporting of health enhancing behaviour change” (Campell and MacPhail, 2002: 338).

For Campell and MacPhail (2002) many of the HIV/AIDS peer learning programmes in South Africa are facilitated under the watchful eye of a professional educator; often to the detriment of the programme itself. In the case of HIV/AIDS education, peer learning among same sex peers promoted open and honest levels of communication between others (Campell and MacPhail, 2002). HIV/AIDS-related peer-learning programmes have been met with varied success (Campell and MacPhail, 2002) due to factors such as social norms and stigmas around youth sexuality, HIV/AIDS treatment and prevention; as well as social ills like crime, poverty and unemployment. The peer learning model used in HIV/AIDS interventions and prevention is similar to that employed by tutors at Ikamva Youth (Spaull, 2015). At Ikamva Youth “learners drive the agenda themselves, by bringing questions and problems to small groups. Tutors then facilitate peer-to-peer learning, ensuring learners explain concepts to each other and that shy

learners speak up" (Spaull, 2015: 39).

Understanding how young people learn from their peers is particularly relevant to this study. As much of the research around peer learning is linked to HIV/AIDS research, this study seeks to explore the value of peer learning in other areas – in this case, the role of peers in learning about ICTs.

Talking Technicity

As ICTs become engrained in our daily lives, it is essential to understand peoples' relation to these technologies (Dovey, 2007). Dovey (2007) uses the term "technicity" to describe these relationships and the role of technology in identity formation. "Technicity thus enables us to look at social structures and cultural affinities in a new way – to identify the ways in which technology lies at the heart of these new connections" (Dovey and Kennedy, 2006: 17). A person's preferences and tastes become part of their identity, which forms the basis of associations with like-minded individuals; fostering a type of cyberculture (Dovey and Kennedy, 2007). Modern societies view technological aptitude and competency as a key marker for success, with some technicities privileged over others (Dovey, 2006).

Dovey and Kennedy (2007) identified technicity as a key concept for examining a hegemonic game subculture, detailing how technological competencies were based on race and gender. Their research highlights how cultural and social barriers act as hurdles to the development of technological aptitude; much like how race, class and gender are entwined with societal power dynamics (Dovey and Kennedy, 2007). Technicity discussions must pay attention to how "the 'digital divide' operates globally, how socialisation and education play a part in directing particular groups away from an interest in science, technology or mathematics; factors that "determine the construction of gender and racial difference in access to technological prowess" (Dovey and Kennedy, 2007:18).

This study's exploration of South African mobile youth cultures reveals the shortcomings of formal education, as well as how young people are utilising ICTs in their daily lives. This information could be used to develop better teaching methods and create more suitable content and solutions for this demographic. Understanding the role of technology in identity formation and how an individual's personal preferences influence associations with like-minded people can possibly explain the gender relations that influenced participation in the coding club, the network homophily exhibited by the participants, as well as how the use of ICTs give rise to a common social identity.

Gendered Technologies

Female participation in the fields of science and technology differ around the globe, but there still exists a dominant culture of masculinity (Mellstrom, 2013). Associations between masculinity, machinery and digital technology mean women are often excluded from these environments and learning establishments fail to make these subjects attractive to young women (Mellstrom, 2013). According to Bray (2013) Western societies have coded technology male. Early research into gender and ICTs showed that our fundamental social and cultural conceptions mean that gender and technology are intrinsically intertwined (Fox, Johnson and Rosser, 2006). “Men are viewed as having a natural affinity with technology, whereas women supposedly fear or dislike it” (Bray, 2013:370). It has long been suggested that men are more inclined to want to engage and fiddle with machines, while women use ICTs out of necessity (Bray, 2013). But technological advances mean that those without ICT expertise can fall behind (Sweetman, 1998). Technological expertise is represented in various formats as being “white” and “masculine”; with the connection between men and technology deemed more “natural” (Dovey and Kennedy, 2007:18). These norms produce stereotypes that women lack ICT capabilities; contributing to the fact that women infrequently develop an affinity for technology (Dovey and Kennedy, 2007). The skills and knowhow that women do possess commonly are undervalued and unrecognised (Sweetman, 1998).

For years, feminist researchers have expressed concern that boys play games more than girls. In doing so, boys are becoming more proficient at using ICTs because they are simply using these technologies more often (Konzack, 2007). Lacklustre tech literacy limits young girls’ access to technological careers, as ICT skills increasingly become a requirement for employment (Konzack, 2007). There is a need to raise awareness and educate young women so that they can participate in digital society (Konzack, 2007). In a study of the influence of schools on perceptions around computers and gender, Meelissen and Drent (2007) highlight how important it is for young girls to be exposed to female teachers who are confident ICT-users because they act as positive role models to young women.

Just as older technologies held certain gender associations, new digital technologies often serve as platforms to reinforce these associations (Fox, Johnson and Rosser, 2006). “Gender shapes how the new multimedia technologies are used. Adoption of the new technologies reinforces gender politics” (Fox, Johnson and Rosser, 2006: 10). Feminist scholar Donna Haraway (1997) suggests that new technologies have blurred the boundaries between humans, nature and technology. Discussing what she terms “cyborg anthropology”, Haraway (1997) explored the relations between gender, culture and technology; inspiring new ideas in the field of feminist technoscience. There is a lack of research around gender and ICTs in non-Western societies (Mellstrom, 2013). A broader range of perspectives on gender-technology relations in different

settings is required, with a focus on how culture, race and class affect levels of access and use (Mellstrom, 2013).

Gender stereotypes, cultural hurdles and poor education continue to affect the career choices and opportunities of young women (UN Women, 2014). The South African government's paper on the status of women in SA highlighted the hurdles preventing women from playing an active role in the economy (Department of Women, 2015). The report found that women are not favouring careers in technology; gravitating rather to professions that are deemed more "gender appropriate" (Department of Women, 2015). Bovee, Voogt and Meelissen (2005) believe women have increasingly fallen victim to the societal imbalances between the "haves" and "have-nots". Acknowledging that South African women are already grossly underrepresented in these fields, Bovee, Voogt and Meelissen (2005) stress how education could make computers and IT more attractive to young women. "Without women choosing technology-based careers, gender imbalances will sustain. It is important for females to not only grow familiar and confident with ICT, but to develop an interest in the field as well" (Bovee, Voogt and Meelissen, 2005:1763).

Differences in attitudes towards computers have been linked to levels of accessibility, with access to a computer at home being a particularly important factor (Meelissen and Drent, 2007). Studies have shown that male teenagers have greater levels of access to computers at home and use these computers more frequently than their female counterparts (Bovee, Voogt and Meelissen, 2005). In line with this, the ability to access a computer at home was linked to more positive attitudes towards computer use in general and proved advantageous in terms of computer literacy and proficiency (Bovee, Voogt and Meelissen, 2005). Having a computer at home resulted in better academic performance of learners (Bovee, Voogt and Meelissen, 2005). Parents' perceptions and attitude towards their child's computer use, as well as gender stereotypes, were found to influence their child's perception of computers (Bovee, Voogt and Meelissen, 2005).

Theories exploring the complexities around gender and ICT knowledge, access and use are vital to this study. This research can be used to explain the participants' perceptions of who can teach them the most about ICTs, as well as their gendered associations between specific technology-related skills and activities.

Social Networks, Homophily and Assortative Mixing

"A network is a collection of things and their relationships to one another. People connect with others through social networks formed by kinship, language, trade, exchange, conflict, citation and collaboration" (Hansen, Shneiderman and Smith, 2010: 31). Whenever people interact, a social network is formed (Hansen, Shneiderman and Smith, 2010). Social network analysis

focuses on relationships (Fonseca and Xerez, 2013: 566). Social network analysis allows researchers to unpack and identify trends that emerge within groupings of different entities (Hansen, Shneiderman and Smith, 2010: 32). The ties that link different actors in a network differ in strength; thus, a strong tie is generally one with a close level of proximity, while weak ties have a less intimate relationship (Hansen, Shneiderman and Smith, 2010).

Ego-centred network studies involve asking a sample of people (egos) to list and discuss the people (alters) within their personal social networks (Hansen, Shneiderman and Smith, 2010). According to Hansen, Shneiderman and Smith (2010), in instances when the egos are not limited to mentioning people who fall within a certain category, an ego-centred approach can reveal how individuals rely on different groupings of people for different kinds of resources. While one would expect strong ties to be of most importance, Granovetter (1973) highlights how weak ties (acquaintances) can connect different groups of people and in doing so, foster greater transfer of information and learning. Granovetter (1973) suggests that individuals with just a few weak ties are at a disadvantage because they are disconnected from other groupings.

As will be discussed in Chapter 5, the study participants' ego-centric networks were largely homophilous, which suggests that they have a tendency to associate with those who are like them in some way (Ackland and Shorish, 2014). As McPherson, Smith-Lovin and Cook (2001:415) note: "similarity breeds connection". Interpersonal relationships tend to occur between people who are perceived to share some similarities (Ozyer et al, 2013). The positive correlation in personal attributes can include demographic characteristics such as age, race, socio-economic status, education level and gender– all of which are highly relevant in the context of this study (Ackland and Shorish, 2014). Ties are not only formed on the basis of common attributes but also on subjective attributes such as political affiliations or shared desires for certain goods or services (Ackland and Shorish, 2014:25). "The study of homophily can provide important insights into the diffusion of information and behaviours within a society and has been particularly useful in understanding online community formation given the self-selected nature of the information consumed" (Ackland and Shorish, 2014:25). Homophily is also referred to as assortative mixing or assortativity.

"While the general population is almost perfectly sex heterogeneous (with men and women being almost equal-sized groups), most environments where networks have been studied are not" (McPherson, Smith-Lovin and Cook, 2001: 423). McPherson, Smith-Lovin and Cook, (2001) found that when exploring the principle of homophily in relation to sex and gender, young boys and girls tended to gravitate towards vastly different social circles. According to McPherson, Smith-Lovin and Cook (2001) boys tend to mix in larger, more heterogeneous cliques and girls in smaller more homogenous groups. Age homophily is encouraged in formal education

institutions because children are grouped together by their ages, but weakens as students get older. Within the context of a neighbourhood or a work place, age homophily can be manifested positively in the form of friendships or through negative ties such as shared deviant behaviours (McPherson, Smith-Lovin and Cook, 2001). "While geography is the physical substrate on which homophily is built, family connections are the biosocial web that connects us to those who are simultaneously similar and different" (McPherson, Smith-Lovin and Cook, 2001: 431). The role of homophily in socialisation processes sees individuals who associate with each other, irrespective of their prior similarities, influencing each another (Kandel, 1978). "If demographic similarity tends to indicate shared knowledge, we would expect people to associate with similar others for ease of communication, shared cultural tastes and other features that smooth the coordination of activity and communication" (McPherson, Smith-Lovin and Cook, 2001:435). Within adolescent subcultures, interactions with similar others prove a greater force than socialisation (McPherson, Smith-Lovin and Cook, 2001).

The history of Khayelitsha as a segregated location under the Apartheid system's Group Areas Act explains the race and language homophily among the participants. According to Spaull (2015) the legacy of Apartheid has meant that learners living in poorer communities tend to struggle academically. "Although racial segregation has been abolished for 20 years, schools which served predominantly White learners under Apartheid remain functional (although racially mixed), while the vast majority of those which served Black learners remain dysfunctional and unable to impart the necessary numeracy and literacy skills to learners" (Spaull, 2015: 34). This poor education is also manifested in limited digital literacy as insufficient infrastructure and little exposure to digital tools means the participants often miss out on opportunities to use ICTs to learn and communicate with others

Digital Storytelling and Digital Literacies

ICTs have altered the nature of literacy (Coiro et al, 2014). Digital literacy is the ability to use digital tools to access and evaluate digital resources, learn and communicate with others (Lankshear and Knobel, 2011). The term is often referred to as part of discussions around the "digital divide", which sees a gap emerging between the ICT "haves" and "have nots" (Lankshear and Knobel, 2011). Digital technology and the Internet can change modern education systems, but one must be cognisant of the disparities between those who can afford technology and broadband and those who cannot (Baker, 2010). In a South African context, Kreutzer (2009) identified a two-tier educational structure; with wealthy, upper class youth exposed to rich digital media environments both at home and at school and less fortunate youth lacking home access and only being exposed to standardised IT teaching at school. Facer and Furlong (2001:451) describe this divide as "information poverty", which cases social exclusion because some cannot participate in basic societal practices. "The penetration of new

technologies into many areas of economic and social life does raise concerns about the extent to which those who cannot or choose not to use ICTs will experience full social participation in this 'Information age'" (Facer and Furlong, 2001: 452).

Certain "digital divides" exist not due to a lack of access but because some only turn to digital media occasionally for specific tasks, while others make it an essential part of their everyday lives (Hargittai and Walejko, 2008). In many instances, these tools become a means of self-expression and facilitate identity formation by enabling people to tell their personal stories.

"It has been argued that storytelling is the main mode of successful communication (Burke and Kafai, 2010: 350). For young people, the stories they tell reveal a great deal about their identities, understanding of the world around them, heritage and lived experiences (Sawhney, 2009). Digital storytelling is a medium that combines words, sounds, images and technology; amalgamating traditional literacy, new media, and digital technology (Burke and Kafai, 2010). "The process of creating a digital story offers points of departure for critical reflection, creative self-expression, collaboration and dialogue around issues that are often silenced and marginalised", all of which is expressed through the voice of the storyteller (Alexandra, 2008:101).

The act of creating stories using digital technologies feeds into discussions around new and digital literacies (Lankshear and Knobel, 2011). Literacies are intertwined with social and cultural relationships and hierarchies, as well as complex dynamics of power and identity (Lankshear and Knobel, 2011). "New literacies are identified with an epochal change in technologies and associated changes in social and cultural ways of doing things, ways of being, ways of viewing the world and so on" (Coiro et al, 2014: 7). New literacies explore what being able to read and write means to people and how social contexts affect understanding and aptitude (Street, 2003).

Research into how ICTs are used to access resources, learn and communicate is highly applicable to this study due to the research focus on technology use and learning among youth. Their creation of digital stories during the coding workshop at UCT makes it essential to briefly outline the particulars of digital storytelling practices.

Networked Publics and Digital Trends

Networked publics give rise to a distinct youth culture, with behavioural trends and identity standards distinct from those of their elders (Ito et al, 2009). "The growing influence of peers from a similar age cohort in determining social values and cultural style has grown in tandem with these broader cultural shifts in defining a distinct youth culture or 'kid power'" (Ito et al, 2009: 23). Boyd (2007:122) describes the youth's social media use as a sort of "social

voyeurism" because they manufacture a profile, which determines how they are perceived across online communities. Networked publics refer to the spaces and groups of people who are linked via digital technology networks, such as the Internet or mobile devices (boyd, 2007). Networked publics allow individuals to search for likeminded people and create spaces where invisible audiences can view the expressions and content generated by others (boyd, 2007). These communities are not bound by geography or location. According to boyd (2007), participation in these networked publics allows young people to communicate and maintain connections with their friends.

For boyd (2014) technologically connected teenagers often struggle to keep content private. They tend to choose to share content; suggesting that young people are traversing new ways of "achieving privacy in public" (boyd, 2014: 65). "Although not all teenagers are carefully crafting content to be understood by a limited audience, many are exploring techniques like this to express themselves in situations in which they assume others are watching" (boyd, 2014: 70). Thus, the underlying meaning of the content they share should not be overlooked (boyd, 2014).

Not only has technological innovation redefined the realms of public and private spaces, it has also reframed what we understand as global and local; altering how young people associate with and interact with each other (Bennett and Robards, 2014). And with these new communication and interaction methods, youth culture has transformed from being something bound by shared experiences and a common physical locations, to a phenomenon curated using digital tools in virtual spaces (Bennett and Robards, 2014).

For Rettberg (2014: 12) social networks allow us to connect with others and to reflect on ourselves. As Internet speeds improve, the Internet has evolved from being conversational to visual. One example of this shift is the "selfie", which sees people taking pictures of themselves, typically with a camera phone or hand-held digital camera (Wendt, 2014). "Although taking a selfie appears to be an act of solitude, it actually is a smaller part of the larger picture of how we project ourselves and connect with our friends and others online (Best, 2015: 65). According to Rettberg (2014), these personal portraits represent how different elements of self-presentation and expression have become interwoven with digital media. Mediated through ICTs and social networks, the proliferation and popularity of selfies foster communal identities; with the sharing of these curated images serving as a form of personal validation (Wendt, 2014). "The selfie acts as a substitute for our needs, wants and desires" (Wendt, 2014: 45) and the proliferation of mobile technology means that one is able to snap a selfie anytime, anywhere.

Negative perceptions around selfies include the belief that these images constitute shameless self-promotion, are associated with either rampant narcissism or low self esteem and are

commonly interpreted as providing audiences with an inauthentic view of reality (Best, 2015). On the flip side, these images can be viewed as an empowering act of self-actualisation in that modern technology affords everyone with a mobile device the freedom to express themselves (Best 2015). Regularly associated with teenage girls, selfies distributed online through various social networks and sharing platforms "can be used for personal branding, play and self-performance" (Humphreys, 2015:87). Williams and Marquez's (2015) study of selfies as a social tool found that males deemed selfie taking okay for girls but was seen as shallow for boys (Williams and Marquez, 2015). This reinforces society's acceptance of women as objects available for consumption and their discomfort with men being treated in this way (Williams and Marquez, 2015). This builds on studies of the double standards around the phenomenon of sexting, whereby people share naked or semi-naked images of themselves with others (Albury, 2015). Young people have framed taking and sharing selfies as a gendered process. "Their explanations of the different ways that young men and women made and shared (or chose not to share) selfies opened up fertile ground for future inquiry into the specificities of gendered selfie cultures" (Albury, 2015: 1742).

Ling's research into mobile communication (2012) suggests that young people feel left out from elements of social life if they lack a mobile phone. While ICTs have expanded possibilities for young people to learn, communicate, develop their identities and create content; these innovations are not without dangers (Burton and Mutongwizo, 2009). Research by Walton et al (2012) discusses the occurrence of cyber bullying; which saw personal details or private images being shared with people who would not have been granted access to this content in the first place. Cyber bullying can be carried out via various mediums – from text messages and social network posts to emails and the sharing of videos or photographs without consent (Burton and Mutongwizo, 2009). Cyber bullying can also occur when peer groups reject certain individuals and deny them access to shared spaces (Walton et al, 2012).

For the purpose of this study, understanding networked publics and digital trends provides insights into mobile youth culture. In addition to this, selfies proved a popular activity for the participants and the associations with, and stigma around, this behaviour should be considered in order to draw conclusions about the group's media creation habits.

Content Sharing and Mediated Identities

Digitisation has made it ever easier for young people to form identities by consuming their choice of content, creating content and sharing this with others (Bers and Noam, 2011). Looking at content creation and online sharing among US university students, Hargittai and Walejko (2008) detailed how Internet is used to search for information, share content and communicate with those in their networks. They identified a "participation gap" whereby some participants

were willing and able to share the content they created online and others were not (Hargittai and Walejko, 2008). This gap means some have the opportunity to participate in digital and online life, while others do not (Jenkins, 2006). Within a South African context, these gaps are also evident, albeit for reasons related to race, class and gender disparities.

For Ling (2009) mobile phones are central to the lives of teenagers because they are a vehicle for self-expression and allow teenagers to experience a sense of independence. The drive to create and share content can be social, personal and opportunistic or merely an element of conforming to socially accepted norms of exchange (Liu, Wu, Yao, 2009). According to Prensky (2001) a distinction must be made between "legacy content" – reading, writing and arithmetic – and "future content" – more digital and technologically focused. This distinction is necessary because different types of content are shared in different ways (Prensky, 2001).

Goh et al (2009:197) identify various motivations for media sharing: creating and maintaining social relationships; reminders of individual and collective experiences; self-presentation; self-expression and task performance. Media sharing motivators include an individual's desire to connect with their peers, to tell a story, document experiences, express their views/opinions or make informed decisions (Goh et al, 2009). According to Goh et al (2009) mobile phones with cameras have largely driven mobile media content sharing. Kreutzer's (2009) study of mobile Internet use among youth from low-income areas in Cape Town explored how mobile technologies were used to share and create videos, music and photographs. The research (Kreutzer, 2009) suggests that the absence of ubiquitous connectivity and access to resources does not necessarily limit the participatory use of online and digital media. To compensate for their lack of access, mobile phones are heavily relied upon (Kreutzer, 2009). And as the price of ICTs declines and the industry evolves, more people will have access to these smart devices (Kreutzer, 2009). According to Kreutzer (2009) the realms of access, production and sharing of media content via mobile phones by young South Africans is a relatively under researched area, particularly around the Internet and social media.

A similar study conducted in Khayelitsha, Cape Town, found that photos, resources and private information were regularly shared between peers and within close networks (Walton et al, 2012). The research outlined the prevalence of proximate media transfers between peers via services like Bluetooth (Walton et al, 2012). "While young people around the world use phones to share media and construct digital identities, various local contexts, resources and norms shape practices differently" (Walton et al, 2012:411). Many share devices; an occurrence driven by necessity, which comes at the expense of privacy, mobility and convenience (Walton et al, 2012). In this case, the "obligations and conveniences of sharing in families and low income neighbourhoods intersect with the pleasures, status and pressures associated with young people's media sharing in intimate relationships and peer groups" (Walton et al, 2012: 404).

Device sharing was intrinsically linked with norms around social status and group affiliation (Walton et al, 2012).

This mediated layer between true self and the self-presented to others via digital media content means individuals can alter their identity with ease (Palfrey and Gasser, 2013). Digital technologies and the Internet have created seismic shifts in how young people curate their identities and portray themselves to their peers (Palfrey and Gasser, 2013). Performative media is content that seeks to generate action; informative media conveys information and problem-solving media functions to address an issue (Goh et al., 2009). By sharing personal information with peers, young people are opening themselves up to public scrutiny (Palfrey and Gasser, 2013). According to boyd (2007:129), the development and creation of these mediated identities can be described as the formation of a type of "digital body" where young people portray carefully cultivated elements of themselves for others to view and dissect; with much of their chosen representations driven by a desire to be validated by their peers.

This study includes an analysis of what and how the participants are sharing content with each other. Theories around mediated identities and content creation and sharing as a means of self-expression assist in formulating theories exploring use patterns across the sample.

3. Methodology

The aim of this study is to describe mobile youth culture and the informal learning networks of a group of young people living in Khayelitsha, Cape Town. A group of 18 teenagers from Makhaza (9 males and 9 females) participated in four coding workshops held in a computer lab at UCT on Saturdays between 25 April and 30 May 2015.

The workshop formed part of Creative Code; a project run by Marion Walton, an associate professor at the Centre for Film and Media Studies (CFMS) at UCT. Since 2012, Walton and her students have taught high school learners from Makhaza in Khayelitsha about the principles of coding and computational media. The coding classes and workshop were run in partnership with Ikamva Youth. Part of the Ikamva Youth programme includes providing access to digital technologies and equipping learners with essential computer literacy skills and information.

Students from Ikamva Youth in Makhaza were invited to volunteer for the coding workshop at UCT. Ikamva Youth tutors selected the final group that attended the workshops. This group included twice as many males as females. To achieve a better gender balance, an additional group of young women were recruited after the UCT workshop, when weekly Coding Club sessions were held the Nazeema Isaacs Library in Makhaza. The UCT workshop made use of tablets from the CFMS Convergence Lab. Each learner was given his or her own tablet to use for the duration of the workshop. The aim was to teach participants basic coding principles on a tablet device with the ultimate goal of coding and conceptualising interactive digital stories. The activities undertaken during these workshops, and the additional coding classes held at the Ikamva Youth branch on Fridays, formed the basis of this study.

Data was obtained through semi-structured interviews with each participant. Participants who appeared to somewhat deviate from the norms of the group were selected for follow-up interviews. During these interviews, the participants were asked to name the most important people in their lives. The questions posed are detailed in Appendix C. This information was used in an ego-centric social network analysis. In addition to this, the participants were asked to complete questionnaires around what they had learnt in the coding classes and their understanding of different networks. The content created by the participants – including their main project, which was a digital story/game - also forms part of this analysis.

The study aimed to provide a snapshot of this specific group of young people by documenting their levels of access, offline sharing methods and use of digital technologies. The study illustrates the importance of peer and informal learning networks – especially due to the apparent shortcoming of formal education - and how this group of youth differs from the broader population of young people as a result of their access and infrastructural limitations. The corpus of data collected included interview transcripts, observation notes, questionnaire

data and mind maps of the participants' personal networks, as well as the drawings and digital stories created during the UCT coding workshop.

The Research Site

Khayelitsha is an informal settlement in the Western Cape divided into 22 sub-areas – with older sections established by the Apartheid government pre-democracy and newer sections located around these earlier settlements. With a population of 26 834 people, Makhaza (Ward 96) is located in the newer areas of Khayelitsha. According to Census data (2011), the average annual household income of Makhaza residents is R14 600; with an average monthly income of R2 400. More than half of the people in Makhaza are unemployed; employment rates in the area are only 37.3%. Female-headed households make up 44.5% of the population, about 25% higher than the rate in the broader Western Cape (Census, 2011). The educational breakdown of Makhaza residents shows that most (73.2%) have completed Grade 9 or higher and just 35.2% have completed Matric or higher. In terms of infrastructure and access to resources, 80% of the community has access to water provided from a regional or local service provider. Electricity provision is at 80% for "some things" but only 18% of the population has access to electricity for everything. The remaining 2% has no access to electricity. Only 32.2% of households have internet access and unsurprisingly, a large portion of the population (40%) is accessing the internet via their mobile devices.

Based on insights from the study participants – most are supported either by a mother, father or both. Other principal caregivers included aunts, grandmothers and older siblings. Of the 30 guardians outlined by the study participants - the majority are employed. Only six were unemployed while four of the 30 caregivers worked as domestic workers. Just over half of the participants lived in brick houses (9) while the remainder lived in shacks or informal housing (8). One participant reported living in a backyard shack.

Looking at the participants' access levels, most had "no access" to consumer electronics such as desktop computers, cell phones, laptops and tablets. This was especially true for tablets, with just one of the participants owning a tablet and one sharing a tablet with a family member. Of the 18 participants, 11 owned cell phones. None had their own desktop computers. The data around desktop computer access highlights the importance of the Ikamva Youth branch, a place where more than half of the group was able to utilise desktop computers. This also illustrates the failure of schools in terms of providing young people with access to digital infrastructure. As was found in a study by Walton et al (2012) sharing of devices remains common, with close to a third of the group sharing either a desktop, laptop or cell phone. Only two of the participants did not have access to a mobile device. Most used their phones to access the internet – only four participants never use the Internet of their mobile phones. Internet access at school is

limited; with 16 of the participants never doing so within the confines of their formal learning environments. Thus not much had changed in the five years since Walton et al's (2012) research, which noted that in 2010, access to computers was scarce.

When analysing findings around gender and peers, it must be noted that the male participants were generally older than the female participants. Just one male participant was younger than 15 and five were 17; while six of the female participants were younger than 15. As such, the gender differences discussed in this study are influenced by the gender-based age variation of the sample.

Selecting a Research Method

People undertake research to ask and answer questions (Boeije, 2009); hoping to generate valuable and meaningful knowledge (Punch, 2013). According to Boeije (2009:5), the same topic can be studied using different approaches – be it qualitative or quantitative – because both "describe, understand and explain a certain social phenomenon".

Quantitative research methods investigate phenomena via statistical models and mathematics (Balnaves and Caputi, 2001). While qualitative methods uncover insights based solely on specific cases under investigation – only able to hypothesise about broader conclusions - quantitative methods aim to conclusively verify if any of these hypotheses are in fact true (Balnaves and Caputi, 2001). Quantitative studies reveal trends while qualitative research attempts to unveil the reasoning behind these trends (Mills, Durepos and Wiebe, 2009). Qualitative researchers have often felt "separated from the academic community, as foreigners in a native land who are isolated, excluded and even stigmatised from rituals that imbue members with power and recognition" (Hutchinson, 2001:506). This academic rivalry presents an opportunity for academics to engage in a mixed methods approach, which takes advantage of different ways to explore research problems (Boeije, 2005). By combining elements of qualitative and quantitative research methodologies and collecting a variety of data, researchers can acquire the best understanding of the problem at hand (Creswell, 2003). Ultimately, it is essential to match one's research interests with a fitting approach to understanding and gaining insights about a problem (Cresswell, 2003). "A consensus has gradually emerged that the important challenge is to appropriately match methods to purposes and inquiry questions, not to universally and unconditionally advocate any single methodological approach for all inquiry situations" (Patton, 2014:731).

Qualitative Research

Over the course of the workshops, and the subsequent coding classes, various insights around informal learning networks, peer relationships, media use and access and offline sharing were

gained through qualitative methods. While this proved the more suitable methodological approach to this study, the data obtained around the participants' close ties networks (n=168) was analysed using quantitative methodology.

A researcher can ascertain how much a child can read by giving this child a reading test but should this same researcher want to find out how the child feels about reading, they would need talk to them and ask them questions about their experiences (Patton, 2014). This type of inquiry aims to get an in-depth and contextually sensitive understanding of a particular phenomenon (Patton, 2014).

"Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds and what meaning they attribute to those experiences" (Merriam, 2009:5). By focusing on the uniqueness of each situation, this branch of research does not necessarily aim to make any forecasts about future happenings but rather seeks to develop an intimate understanding of a specific time and place (Patton, 2014). Any qualitative study must be sensitive to context (Patton, 2014).

Qualitative research methodology enables a researcher to better understand what governs behaviour and discern the reasoning behind decision-making (Boeije, 2009). These studies unpack unstructured data in the form of stories, researcher observations and documents and understanding of the meaning of a phenomenon is framed by examining the views of participants (Creswell, 2003; Patton, 2014). Views must be those of the participants, not the researcher (Merriam, 2009). Data is generated through open-ended in-depth interviews, direct observations conducted during fieldwork and the analysis of written, oral or visual artefacts (Boeije, 2009). All three of these approaches were undertaken as part of this research. A mixed methods approach allowed me to reveal trends and later probe the participants about their understanding of and opinions about these trends.

Regardless of research methods, researchers must understand that things do not always go according to plan (Patton, 2014). For Patton (2014) qualitative research allows one to recognise unexpected consequences and the causes and repercussions thereof. To gain an understanding of human behaviour requires an understanding of language use; as language allows people to relay their unique experiences (Seidman, 2013). Ways of communicating, conversations and language are of particular interest in qualitative studies (Boeije, 2005). According to Seidman (2013), in-depth interviews aim to understand experiences and, more specifically, how an individual makes sense of those unique experiences. The idea is to condense a significant amount of data into several key and meaningful learnings (Patton, 2014).

Questionnaires require the subject to answer a set of standardised questions. They differ from surveys in that they remove the possibility of interviewer bias, protect respondent anonymity

and are less time consuming that other research methods (Mills, Durepos and Wiebe, 2009). But because participants answer the questionnaire by themselves, researchers don't have the opportunity to ask follow-up questions; calling into question the validity and robustness of the data (Mills, Durepos and Wiebe, 2009). "Respondents are usually better able to express themselves orally than in writing and questionnaires may compromise the willingness of participants who have limited reading and writing abilities to provide thorough and complete responses" (Mills, Durepos and Wiebe, 2009:769). This is especially true for respondents who are answering questions in their second language. The questionnaire used as part of this study called on the participants to illustrate how they thought Bluetooth, Wifi and the Internet function.

Qualitative research is commonly conducted on small, focused data sets, which makes it a fitting methodological application for examining a specific case study (Boeije, 2009). The case study approach involves an inquiry into a single process, activity, event or series of events as a means to describe and explain an interesting phenomenon (Bromley, 1990). Case study research is generally bound by stringent time parameters and sees the researcher utilising numerous data collection methods to retrieve detailed information (Cresswell, 2003). Content analysis is systematic and objective, while providing a detailed examination of communication (Lewis, et al, 2013). The content analysis conducted as part of this study is focused on the media created by the participants – be it their digital stories, selfies, photos or finger drawings.

Ethnography

Ethnographers and social scientists are increasingly conducting research in environments saturated with mobile devices and digital technologies (Dicks et al, 2005). This has given rise to the study of how interactions and behaviours are mediated via networked platforms such as the internet (Dicks et al, 2005). According to Dicks et al (2005) ICTs present interesting possibilities for qualitative researchers, not only utilising these tools to enhance their research techniques but also examining how research participants are using these innovations.

Ethnographic research is rooted in anthropology, focusing on people and cultures (Stommel and Wills, 2004). Whitehead (2005:5) describes ethnography as a "holistic approach" to the study of "socio-cultural contexts, processes and meanings within cultural systems". These studies explore social systems of people in varied circumstances – households, peer groups, formal and informal networks, institutions, broader communities – to ascertain how setting, historically accepted norms and socially defined interaction patterns influence behaviour. The aim is to gain a better understanding of collectives of people, their beliefs, ideals and behaviours (Stommel and Wills, 2004). The researcher acts as a type of "participant observer" who interacts closely with the people they are studying in an effort to gain a deeper level of

understanding of how and why the group behaves in a certain way (Stommel and Wills, 2004: 183). According to Stommel and Wills (2004) fieldwork is the most common method of data collection in ethnographic studies. Ethnography differs from research methods that engage with participants in artificial settings because it focuses on the observation of human behaviour in context (Mills, Durepos and Wiebe, 2009). This research method is rooted in the researcher's own observations but can also include interviews with study participants, as well as the analysis of other artefacts, like text or images (Stommel and Wills, 2004). Ethnographic approaches should be relatively flexible because the researcher must alter their perception of the research topic based on unexpected happenings during fieldwork (Cresswell, 2003).

Ethnographic endeavours need not be focused on observing unknown phenomena but aim to discover how to better understand certain phenomena (Whitehead, 2005). While none of the coding workshops and classes were held within the scope of formal educational teachings; the general set-up of the coding instruction could be likened to that of a classroom. "Classroom ethnography refers to the application of ethnographic and sociolinguistic or discourse analytic research methods to the study behaviour, activities, interactions and discourse in formal and semi-formal educational settings" (Watson-Gegeo, 1999: 135). This entails a detailed observation of a classroom over a period of time, with observations supplemented by interviews, field notes and other artefacts (Watson-Gegeo, 1999). Classroom ethnographic studies incorporate the perspectives of participants, explore the context of interactions and highlight social and cultural elements of teaching and learning (Watson-Gegeo, 1999). Much like classroom ethnography, participant observation entails gaining a level of familiarity with a specific group of individuals and observing their behaviours within a cultural setting over a certain period of time (DeWalt and DeWalt, 2011). "Participant observation puts you where the action is and lets you collect data. Any kind of data that you want, narratives or numbers" (DeWalt and DeWalt, 2011:2). Having spent time with the participants, both during the coding workshop and the Friday afternoon coding classes, I have been able to observe their behaviour; particularly around their use of and engagement with ICTs.

Ethics

"Research is commonly expected to minimise the risk of causing harm (non-maleficence), to carry out worthwhile and potentially beneficial work (beneficence) and to distribute the benefits and risks non-discriminatory throughout a research project and beyond (fairness)" (Punch, 2013:49). Boeije (2009) describes three important ethical considerations – informed consent, privacy and confidentiality and anonymity. Researchers should ask themselves whether or not their proposed project is "good science" and must consider what the benefits, costs or risks to the participating organisation or participants may be (Boeije, 2009).

Social scientists must make ethical considerations when undertaking a study of human subjects (Boeije, 2009). Although gaining informed consent from research participants is essential, Patton (2014) notes that this leaves little room for covert research practices, which see ethnographers and participants interacting in shared public spaces. “Research involving human subjects undertaken without the explicit consent of the researched lacks an adequate moral basis and it would be better if the research were not undertaken” (Gregory, 2003:35). Trust is vital as researchers are privy to private and sensitive information about the people they are studying (Punch, 2013). Being responsible with this data is the cornerstone of preventing participants from experiencing any distress or psychological harm (Punch, 2013). Subjects who do not trust the researcher are less likely to divulge their honest feelings and perceptions (Boeije, 2009). “Researchers have to consider the moral accuracy of their research activities in relation to the people they meet along the way, such as participants, hosts, funders, colleagues and parties who are likely to encounter the implications of the research” (Boeije, 2009: 44).

For Patton (2014), communities that have emerged as a result of digital innovation present researchers with new ways of studying social interactions and behaviours. This new digital arena of research brings forth complexities around researcher/participant relationships, confidentiality and anonymity, where participation begins and ends and the extent of consent required (Miller et al, 2012).

According to Anzul et al (2003), ethics discussions should always address social responsibility; a much neglected topic. Researchers often become so immersed in their own objectives and focused on deriving some tangible value from their data that they fail to acknowledge the social impact of their work and of the phenomena they are studying (Anzul et al, 2003). “The principle of social responsibility requires researchers to take care not to damage existing social structures” (Hewson, 2014: 441). Similarly, Swartz (2011) highlights the sensitivities of conducting research with marginalised segments of the population, particularly youth. Coming into a vulnerable population as an outsider requires more stringent ethical considerations (Swartz, 2011). Strategies to minimise impact on the community under investigation – an emancipatory approach – can include “choosing appropriate research activities, deliberately building relationships with research participants, conveying researcher subjectivity … considering how language is used and representations are made” (Swartz, 2011: 50).

The participants were given consent forms, which their caregivers were asked to sign in order for them to participate in the workshop and coding classes. Beyond these formal processes of consent, the Ikamvanites were asked to assent to the research. Considering that this research was conducted with young people from a marginalised segment of society, these ethical considerations were carefully considered at every stage of the study.

Sample Selection

Participants volunteered to join the workshop but the final group was selected using purposive sampling. This sampling method allows the researcher to identify subgroups within a community of interest and select specific individuals or cases from these subgroups with a clear intention (Teddie and Tashakkori, 2009). The aim is to select participants who stand to further the researchers preconceived ideas around the aims and outcomes of the research (Shipman, 2014). This differs from random sampling in that the specifics about the research participants are carefully considered and only people with a particular set of characteristics are selected because of their relevance to the research (Teddie and Tashakkori, 2009). Deciding who or what is researched is entirely up to the researcher, which could be viewed as a limitation due to possible researcher bias (Shipman, 2014). Defending findings can prove another limitation, as critics could suggest that a different selection of participants may have resulted in a different outcome (Teddie and Tashakkori, 2009).

Ikamva Youth tutors recruited interested learners for the Creative Code workshop held at UCT. Final selection was based on the participants' level of dedication and participation at Ikamva Youth. The aim was to select an evenly mixed group of male and female participants of varying ages. The original sample did not meet this objective – with 10 male and just five female participants. Despite attempting to make the workshop content appeal to male and female participants, two female participants dropped out of the UCT coding workshop, possibly illustrating the role gender plays in ICT interest. To make up for the disparity between males and females, coding classes held each Friday at the Ikamva Youth branch attracted several more female participants and the final group was evenly split. The male participants are generally older than their female counterparts as was mentioned in the previous chapter. This disparity in participant age and gender can be seen as a limitation of the sample as it makes it difficult to make any solid conclusions around behaviour based on age and gender.

Unpacking the Interviews

Data collection techniques must be fitted to the nature of the study. Face-to-face interviews can be unstructured and naturalistic or highly structured (Gillham, 2005). This interview technique minimises non-responsiveness and is believed to generate data that is accurate and of a high quality (Gillham, 2005). One of the advantages of conducting face-to-face interviews is that the interviewer is a participant in the interview, which allows them to ask follow-up questions or to call on the interviewee to explain any answers that may be unclear (Gillham, 2005). In this instance, the interviews saw UCT honours student Barbara Fourie and myself sitting down with each of the participants individually for an informal face-to-face interview.

This informal semi-structured interview setting allowed us to ask additional questions and probe the participants further when their answers required more clarification.

Ego-centric Network Analysis

As part of the face-to-face interviews, the participants were asked to create a mind map depicting the eight most important people in their lives. Interview questions attached in Appendix B. This ego-centric/personal network analysis method offers a view of networks from the individual at the centre of the network (Garton, Haythornthwaite and Wellman, 1999). By exploring the nature of their personal networks, it was possible to discover how the participants are learning and sharing information and how they are participating within different peer publics. The information the participants were asked to provide included the person's name, gender, age, their relationship to the participant and what mobile device they used. We were able to capture data for 133 relationships. The participants were required to assess the ICT knowledge of each individual in their network. The close relationships were categorised as family, peers, teachers, Ikamva tutors and other. People classified as "other" included next-door neighbours, "shepherds" (spiritual guides), older friends and the partner of one of their parents. Peers were classified by age – ranging from 10 – 19. As such, family members in this age range were classified as peers, not as family. In addition to the ego-centric network analysis, participants were asked to rank how much they think these people know about Smartphones, the Internet, Photographs, Facebook and Computers from 1-5 (1 being a little and 5 being a lot). In some instances, they failed to answer because they did not feel they were capable of making valid observations.

Participants were also asked specific questions about both a male and female educator (35 educators in total). Thus, the total number of ties analysed as part of the participants' networks is 168. Relationships with male and female teachers formed a different sample because the participants did not voluntarily mention teachers as part of their strong tie networks. The participants were asked the same set of questions about their teachers. Probing them about teachers specifically was undertaken to what they think their teachers know about ICTs. Technology learning categories included Bluetooth, Internet, Mobile Internet, Computer Literacy, Games, General Technology, Mobile Literacy and Technology Careers. Also included in the interviews were questions around their general levels of access to ICTs, use of these devices their understanding of technology dangers and technology careers and their sharing habits. During the coding workshop at UCT, participants were given two questionnaires to complete. In addition to answering questions about the coding principles learned in the workshop, they were tasked with illustrating their understanding of the internet, Wifi and Bluetooth. These illustrations formed the basis of an argument around the participants' media-centric understanding of networks. The sample was also asked what their strong ties, and their

teachers, had taught them about technology. Responses were placed into different categories. A breakdown of the different groupings is detailed in the box below.

- **Nothing**
- **Mobile Literacy:** making calls; sending messages; taking photos (selfies); editing photos; sharing photos, music, videos, games using Bluetooth; downloading Mxit
- **Internet:** using mobile internet device; internet use for school work, not just social media; Google searches and Google Maps; downloading and using WhatsApp; Facebook
- **Downloading:** games; music; apps
- **Computer Literacy:** typing on a computer, using a PC/laptop; rebooting when something goes wrong; using a laptop camera; printing documents; using a USB
- **General Tech: f**ixing broken devices; building things
- **Other: r**ecycling old tech to make new things and not harm the environment; using technology in mathematics; coding
- **Email: s**etting up an email account; sending an email
- **Playing games**
- **Tech Careers: h**ow tech can improve your life; how tech can help you reach your goal.

Limitations

While some of this data could be investigated for statistical significance, I do not have a background in statistics and did not attempt a statistical analysis. In future research, such statistical analysis, in combination with a differently constituted sample, would help to distinguish the influence of various factors such as gender and age from the chance differences that arise in young people's learning networks.

In addition to this, it is important to be mindful of the fact that the nature of the research, and of the data collected, means that there is commonly no accepted unit of measurement for the constructs being discussed (Scruggs and Mstropieri, 2006). In this case, the method of research needs to adequately measure the constructs, i.e. the skills, attributes or proficiencies, under examination (Scruggs and Mstropieri, 2006). While social network analysis frameworks functioned as the foundation of the understanding of the participants' learning behaviour and their interactions within weak/strong tie networks, this theory has not been extensively tested and cannot be used to make grand generalisations about broader South Africa.

4. Mobile Youth Culture and Informal Learning

"In South Africa, computer skills are labelled a form of 'literacy' and culturally valorised, whereas the skills associated with mobile phone use have until recently been synonymous with 'texting', a culturally deprecated literacy practice, particularly in formal settings"(Walton, 2014:108). Theories of "digital" and "new" literacies suggest that important skills are developed by accessing the internet, playing games and engaging with digital media in non-educational settings using a computer (Lankshear and Knobel, 2011, Coiro et al, 2014). By contrast, mobile phone use has commonly been associated with informal or leisure activities - practices that are often banned in libraries and formal educational settings (Walton and Donner, 2012). A lack of formal learning around mobile literacies, coupled with negative perceptions of mobile phone usage, means the participants are turning to their peers and are learning from, and with, each other how to use mobile technologies (Eisen, 2001). And it is through these peer-learning networks, often driven by an interest in youth culture, that the participants and their peers develop a shared mobile technicity (Tomas, 2000; Lave and Wenger, 1991).

The Ikamvanites, much like other young people around the world, use digital media and mobile devices as a means of self-expression and representation. Their desire to express themselves through content creation is connected to their desire to take ownership of the media artefacts they create. In placing their mark on something they are affirming their status in a shared networked public or a community that allows them to communicate with and maintain relationships with their peers – much in the same way as other young people around the world are doing (boyd, 2007).

Despite increased mobile phone penetration and a rise in mobile internet use, offline and co-located media sharing is popular among the participants of this study. But this does not mean that they lack interest in online media. The chapter will argue that while internet access remains a stumbling block for most of the Ikamvanites we interviewed, they still have an interest in the web and try their best to access online content whenever and wherever they can. For these participants, Ikamva serves as a community of practice (Lave and Wenger, 1991) where they can gather with their likeminded peers to access scarce ICT resources.

Their plans to share the digital stories they created during our workshops in particular illustrate how such sharing practices support teens' creativity and media production as well as their media consumption. The crucial importance and highly nuanced nature of their relationships with their peers, as evidenced in the plots of the digital stories they wrote, suggest the key role

of peers in their socialisation and learning and the importance of peer learning networks in their development of mobile literacy.

Nonetheless, while the Ikamvanites' struggles to access the internet demonstrate considerable creativity and problem-solving abilities, their mobile-centric mode of access may be influencing their conceptualisation of the internet, with possible implications for digital literacy. In particular, this chapter connects the participants' largely mobile-centric internet use and their limited exposure to, and poor understanding of, cloud-based networks. This mobile-centric approach to the internet reflects the fact that the participants are mainly experiencing the internet using their mobile devices (Donner and Gitau, 2009).

This chapter will argue that the digital media practices of this group of young people is distinct from that described by Ito and colleagues (Ito et al, 2009), which detailed how young peoples' immersion in new media tools and networks meant that youth in the United States were engaging in unprecedented forms of learning. This study will offer an alternative perspective to the media literacy and participation practices outlined by these researchers (Ito et al, 2009). These disparities will form the basis of my critique of digital native theories. I further argue that mere exposure to mobile ICTs does not fill certain knowledge gaps; many of which exist and are exasperated by poor parental knowledge, limited ICT education and a lack of exposure to the inner working of digital technologies.

A Distinctive Mobile Youth Culture

Adolescent mobile phone research uses the term "mobile youth culture" to explain how young people across the globe have rooted mobile phones in their day-to-day lives (Vanden Abeele, 2015). Understanding how youth use their devices can aid the development of strategies to target and address young people; be it in the areas of health, banking, education or entertainment (Attewell and Savill-Smith, 2005; Unicef, 2012; Walton, 2014). Understanding how young South Africans use the internet is central to understanding contemporary mobile youth culture. This entails exploring everything from their downloading and sharing habits to their networked media production behaviours and practices. As the young people who participated in this study are primarily interacting with digital media and are accessing the internet via their mobile devices, an understanding of their distinct mobile youth culture – including their unique preferences, understanding and use of these technologies - proves relevant.

The majority of the participants in my study (two thirds) spent R10 or less on airtime each week. The largest amount of money spent on airtime each week was R50 and this figure was cited by just one of the participants. This relatively low level of expenditure explains their more habitual use of affordable methods of sharing information. AMPS data (AMPS, 2015) reveals

that over a quarter of South Africans aged 15 - 24 spend R50 or less on their cell phones each month, indicating that the participants' weekly airtime spend is below average for the same age group.

The participants were asked how frequently they used various ICTs (see Figure 1 below). Categories provided included daily, once a week, once a month, a few times a year and never. As has been found in previous studies, our interviews showed that the Ikamvanites preferred offline and co-located sharing of digital media. They preferred these modes of sharing to utilising more costly cloud-based sharing networks such as Wifi or using mobile data to share with their peers. These sharing methods mean that most of the participants (two thirds) use Bluetooth on a daily basis. Only a single participant in my study had never used Bluetooth.

The popularity of free offline sharing methods is likely due to the Ikamvanites' general lack of internet access, which results from the poor infrastructure and resources available to them, as well as the expense of getting online.

"Please Call Me" messages, also a free service, are still used extensively - just over two thirds (13) of the group send Please Call Mes at least once a week. This rate is double that of other South African youth (29% sending "Please Call Me" messages in the past week), according to AMPS (2015) data. Previous SA-based mobile youth culture research highlighted the importance of Mxit, a local instant messaging application (Walton et al, 2012; Donner and Gitau, 2009; Kreutzer, 2009), and until recently it fulfilled an important cost-saving function. But none of the participants made use of the application in 2015.

When asked what applications they used most regularly – WhatsApp proved popular, but only with about half of the students. This trend, coupled with the decline of Mxit, suggests WhatsApp is now a "successor" to Mxit in youth repertoires. In this regard, the Ikamvanites' retreat from Mxit and preference for WhatsApp reflects an overall shift in South African youth culture. Mxit Lifestyle recently reported that it was closing following a drastic decline in users – from 7.5 million in 2013 to 1.2 million monthly active users in July 2015 (Alfreds and Van Zyl, 2015).

Eight students reported using Facebook. Other applications that were mentioned included games, YouTube and Zamob, a site for music and game downloads. Browsers Google and Opera Mini were also mentioned. Thus, although several apps were popular, no app was universally used by all of the Ikamvanites. In fact, two members of the group did not use any apps on their phones and only sent SMSes. The Ikamvanites were also asked how often they sent emails and instant messaging, browsed the web, used social media, downloaded music or files, played games, read news online and took selfies. It is notable that the most popular daily activities

were free (neither Bluetooth nor gaming require use of airtime or data). Most of the young people frequently played games. This contradicts AMPS data, which reported that 36% of youth aged 15-24 did not play games at all (AMPS, 2015). This may be due to the fact that the youth surveyed by AMPS are from more privileged demographics and are spending their time online. Browsing, taking selfies and sending instant messages also proved popular. On the other end of the scale, more than half of the group never sent emails, a ratio slightly higher than the average for South African youth - 40% never send emails (AMPS, 2015). Frequency of social media use proved mixed; the number of participants who never use social media (7) was marginally greater than those logging on every day (6). Again this finding echoes AMPS data, which reports that 46% of South African youth are using Facebook. Most of the group (14) downloads music at least once a week. Again, the participants deviated from other South African youth in that AMPS revealed that 38% never download music (AMPS, 2015). The only activity that every participant reported was browsing the web.

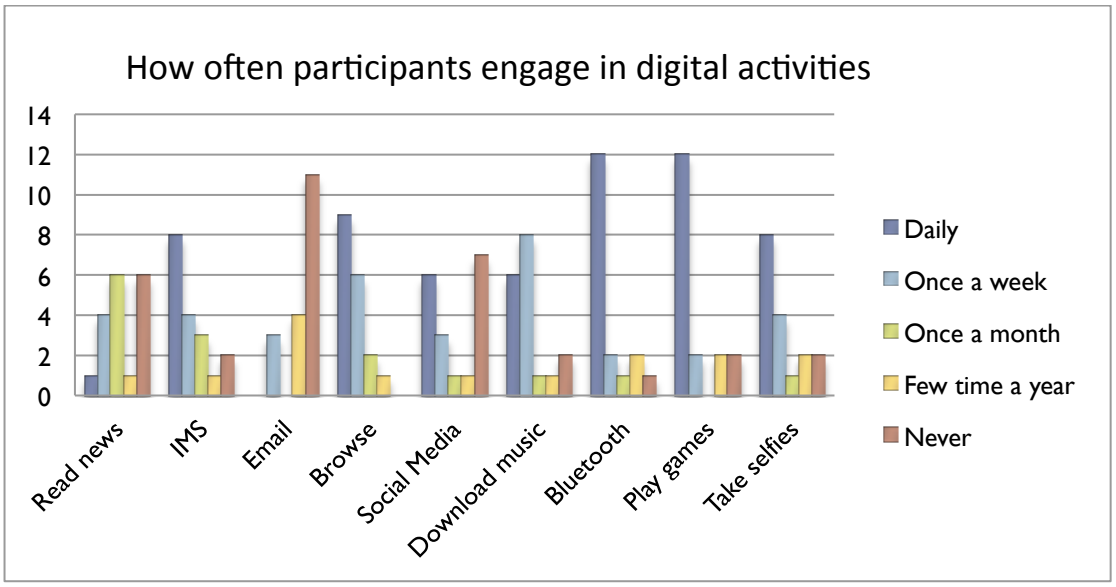

Figure 1: How often participants engage in digital activities.

Participants were also questioned about how frequently they accessed the internet using different devices and in different locations. The findings of this question are detailed in Figure 2 below. Despite claims that they regularly browsed the web and had a relatively good understanding of the internet, the participants are not accessing the internet very regularly. "Never" was the most common response across all the categories. These responses may be due to a lack of understanding around what applications require an internet connection and what mobile activities actually constitute internet use, a methodological problem which has beset similar mobile-centric internet use studies (Kreutzer, 2008; Donner and Gitau, 2009).

Mobile-centric internet use is their dominant mode of access, whether using their own phone or someone else's. Many do so on a daily basis and two thirds at least once a week. The Ikamva Youth branch proved to be a popular location to gain access to the internet and most of the participants did so on a weekly basis. By contrast, schools as a place to learn to use the internet were conspicuous by their absence. While one would expect school-based access to computers and the internet to have improved in recent years, the picture of highly restricted access in 2015 is much the same as was illustrated by Kreutzer's research (conducted in 2008).

The Ikamvanites were least likely to access the internet at schools; some 16 of the 18 participants never use computers at school to access the internet. The lack of infrastructure and access at schools again highlights the importance of programmes such as Ikamva Youth and further solidifies Ikamva as a social context for learning, where the participants can gather with other young people who are also keen to find out more about, and access, digital technologies (Lave and Wenger, 1991). Low levels of access at schools reveal the failure of South African education to achieve its own digital literacy goals, which required all South African learners to be "ICT literate" by 2013 (Department of Education, 2003). In fact, national figures suggest that only 5% of youth aged 15-24 are accessing the internet at educational institutions (AMPS, 2015).

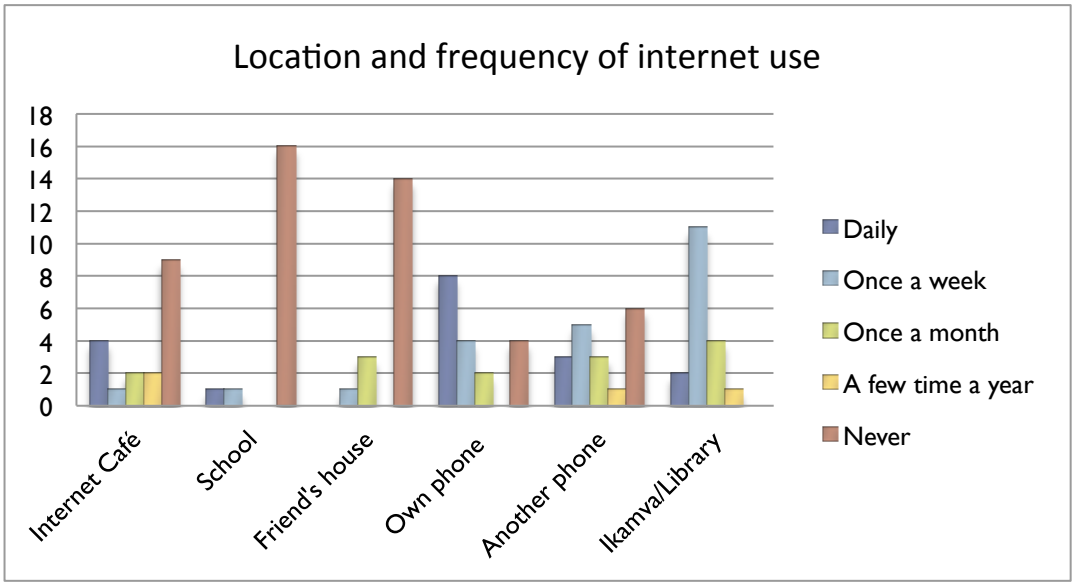

Figure 2: Location and frequency of internet use.

The Ikamvanites are learning primarily about the mobile internet. Their close relationships prove crucial in gaining access and helping them learn. School was not playing any role for this group and the participants appeared to have little to no exposure to technology at school at all. In many instances, schools have functional computer labs but these are not always optimally

maintained or used. They rarely used computers at a friend's house to get online, which reflects the limited number of people living in Makhaza who have a PC or laptop in their home. Thus internet access, while available, required much creativity. These difficulties help to explain the importance of offline media sharing practices among this group.

Gaming – Mobile Routes to Learning and Entertainment

"Gaming is an enormous part of contemporary global media" (Goggin, 2010: 99). Downloading, playing and sharing games were constant preoccupations during our workshop. Most of the teens we interviewed played games on their mobile phones every day. Their affinity for games is likely due to the fact that games do not consume much airtime and accommodate their limited internet access and offline sharing habits. The Ikamvanites explained to us that someone would download a game at a time when they had internet access. They would then utilise offline sharing practices to distribute the game across their peer networks.

The basic premise of the coding workshop at UCT attempted to leverage their enthusiasm about gaming in a digital storytelling assignment, where the students were asked to create a branching, interactive narrative. The game element of the stories required the protagonists of the stories to undertake certain tasks and retrieve specific items in order to reach a positive outcome, or "happy ending" for the story. The groups also had to design an alternative ending, which would be narrated in the event that the main character did not succeed in his or her endeavours.

Tasking the participants with linking behaviours and outcomes ties into research by Gee (2004) around the role of games in informal learning, collaboration and problem solving. Allowing the participants to conceptualise and create their own digital story or game promoted critical thinking because they had to consider how different scenarios would affect the outcome of their game. The participants were intricately involved in the creation of the games – designing characters, conceptualising the plot and selecting the setting. The game settings included familiar locations; such as in and around the shopping mall in Makhaza, the local school and at the Ikamva Youth branch office. One story also included UCT, where the workshops took place.

The characters in the stories were inspired by the participants themselves, or their peers. During the workshop, it was evident that many in the group were disappointed with their final products. It appeared that they had hoped or expected that their stories would resemble and have the complex functionality of the commercial games they are familiar with and play on a daily basis. This is a common problem with game design tasks, where even the simplest interactions require a great deal of coding and knowledge of advanced geometry, particularly for "3D" characters (Buckingham, 2005). This was detailed in Buckingham's (2005) work around the production value of videos created as part of a youth media production project.

It was not uncommon to walk around the room during the coding workshops at UCT and find the male participants surreptitiously playing games on their tablets instead of working with their group on the digital stories. Before and after class activities they were free to play and enjoyed comparing notes about the games they had downloaded. We documented the content downloaded onto each in order to gain insights into their preferences. More than a third had downloaded games. These predominantly included games such as FIFA 2015, WWE Brawler, Drag Racing and Traffic Racer. Other downloads included photography apps and the DJ Studio music-making app.

Only one female participant downloaded a game onto her tablet, the other games were all found on tablets used by male participants. This affirms the gendered technicities associated with gaming and suggests the important role of homophilous peer networks in the acquisition of knowledge about technology and use of digital devices (Konzack, 2007; Ackland and Shorish, 2014). It also links to research by Walton and Pallitt (2012), which revealed gender disparities in the consumption of digital games.

Several participants used the word "playing" to describe their use of apps such as WhatsApp or Facebook. While this use of language may be because they are second language English speakers, this behaviour echoes habitus highlighted by Kreutzer's (2009), which noted how youth used phrasing such as "play Mxit" or "play on Mxit". For Walton and Pallit (2012:353) referring to applications like Facebook and WhatsApp as a "game or an enjoyable and perhaps frivolous diversion reveals the classificatory principles informing young people's appropriation of this application".

As others have argued, and I will detail in Chapter Five, youth living in low-income areas such as Makhaza are likely to learn and engage in a predominantly peer-to-peer modes of media sharing and exhibit a media-centred view of the internet (Walton, et al, 2012; Kreutzer, 2009; Rambe, 2013).

Media-Centred View

A qualitative content analysis of the participants' drawings of digital networks reveals a media-centred rather than cloud-based perspective on the internet. The drawings reveal a link between the participants' limited exposure to cloud-based networks and their limited understanding of how these networks function.

The Ikamvanites sketches suggested to us that they conceptualise digital networks primarily in relation to media sharing, but also in relation to media creation. Much of their motivation with technology is linked to media enjoyment – be it content creation or sharing. As discussed in

Chapter Three, on the first day of the coding workshop at UCT, the participants were given a quiz that required them to illustrate how they thought Bluetooth, the internet and Wifi work.

As will be detailed in Chapter Five, cloud based sharing methods are a privileged mode of sharing and accessing information. Thus, the participants utilise other mediums to share digital media across their social networks. Given these obstacles, the participants have to come up with more creative methods to share media. This is where a free form of data transfer such as Bluetooth proved popular.

Bluetooth

The diagrams below (Figure 3 and 4) illustrate participants' understanding of sharing via Bluetooth.

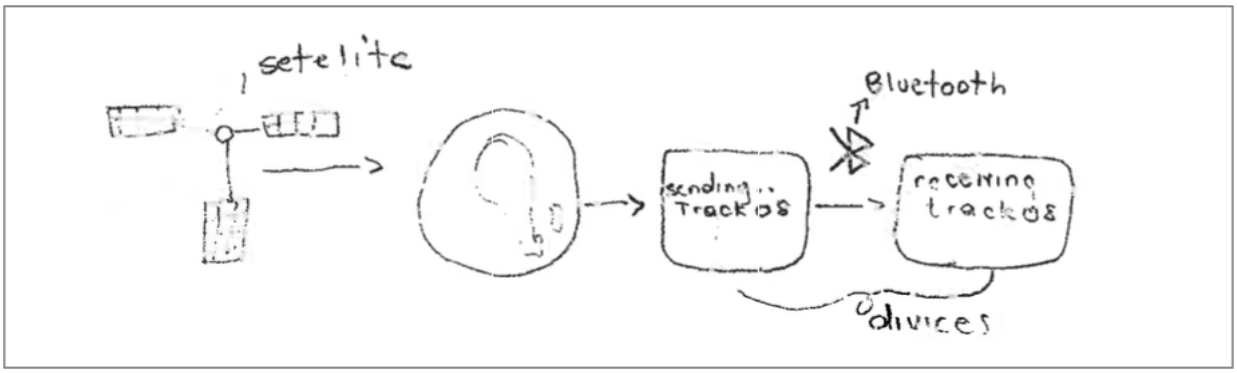

Figure 3: Illustration - Participant's depiction of how Bluetooth works.
The illustration depicts the details of sending a song from one paired device to another.

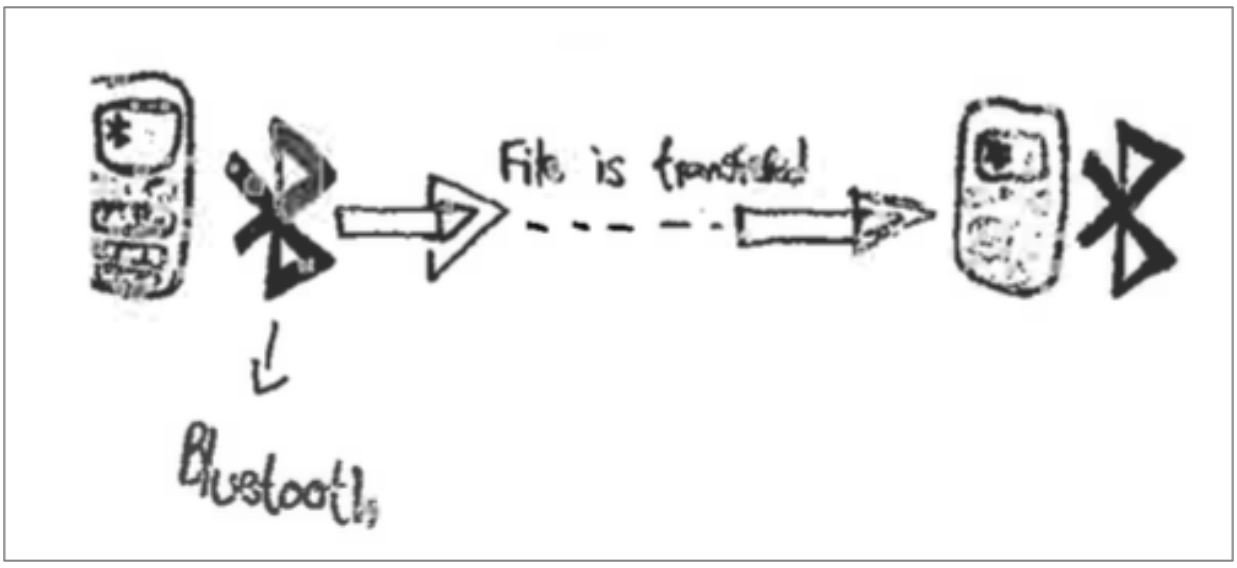

Figure 4: Illustration – Participant's depiction of how Bluetooth works.
The image shows how a file is transferred between two devices with Bluetooth enabled.

The illustrations of Bluetooth revealed the most detailed understanding of its mechanics, which is not surprising given the extent to which young people relied on Bluetooth; their detailed knowledge of this form of local networking is nonetheless notable, given the notorious difficulty of using Bluetooth (Walton et al, 2012).

Drawings featuring two devices with some form of file being moved from one to the other were common. In instances when the participants specified what type of file was being transferred, music was most frequently illustrated. Many of the drawings noted that Bluetooth needed to be switched on in order for a transfer to happen. Some even detailed that one would have to search for a nearby device and only once that device had been found could the file transfer occur. Most included the Bluetooth logo, which one would have to be acquainted with in order to activate Bluetooth on their phones. While this offline sharing method appears simple, the different elements of their drawings illustrate the complexities of using Bluetooth. Content sharing and device use will be further unpacked in the following chapter.

Internet

Figures 5 and 6 below illustrate that despite the participants' experience of the internet being largely mobile-centric, their perceptions of internet access still feature more traditional devices such as PCs or laptops. The majority of the drawings illustrated information being transferred to a desktop or laptop.

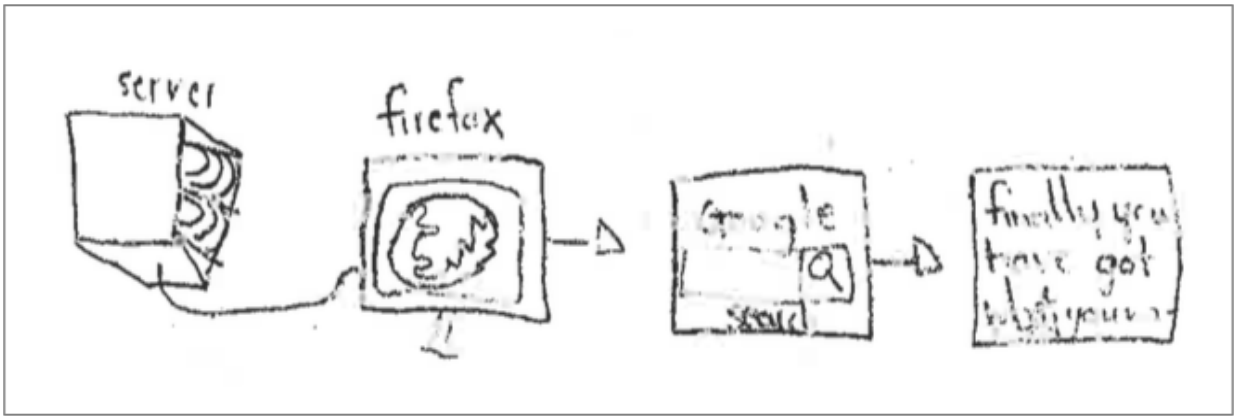

Figure 5: Illustration – Participant's depiction of how the internet works.
There exists an association between the internet and the desktop computers in the Makhaza lab.

Their illustrations also detailed their experiences with the internet – featuring unreliable access and slow connectivity. "If the internet is not working you must know there is a problem with a server…" wrote one participant about the role of servers in the functioning of the internet. The information was sent from the "Google Offices" to a server, which is clearly visible in the Ikamva lab, another reminder of the importance of this public access venue to them.

This emphasis on desktop computers suggests that the Ikamvanites associate “the internet” with computers - perhaps the thin clients and server visible to them in the Ikamva lab, or the desktop PCs in the local library. It may also reveal broadly cultural associations between the internet and computer culture (rather than mobile phones). In Figure 4, the participant drew information flowing from a server to Firefox to Google search and then “finally you have what you are looking for”. Pictures of computer screens with websites “loading” were also drawn. This may reflect their predominant experience – of high latency and low bandwidth internet connections.

Thus the comparative invisibility of mobile internet may be influencing young people’s conception of the internet. Mobile devices are physically separated from mobile networks, and the connections to the network are miniaturised, inside the handset, or invisible. They are certainly not as visible as more tangible artefacts such as a computer screen or server might be. What is “under the hood” of mobile devices is hidden, while the wiring and workings of a computer lab are comparatively accessible for all to see.

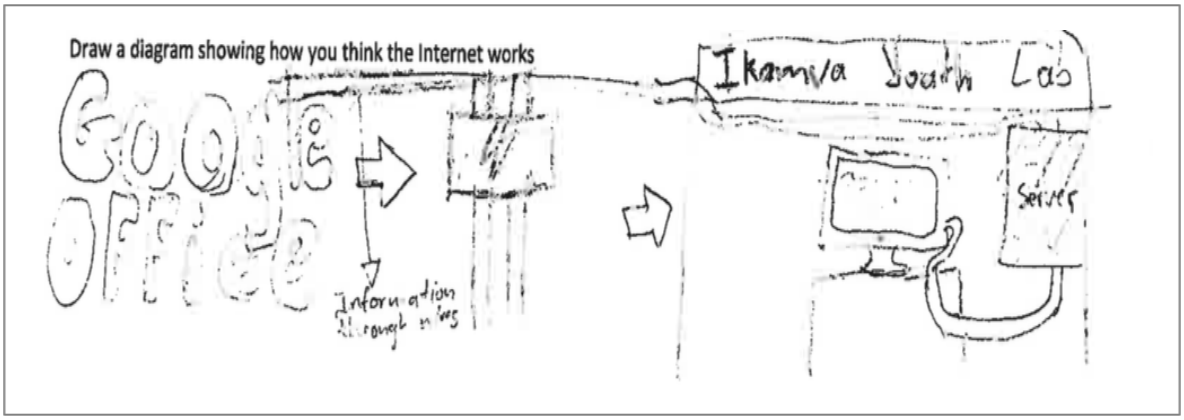

Figure 6: Illustration – Participant’s depiction of how the internet works.
An association between internet and desktop computers; illustrating the importance of Ikamva.

Wifi

Finally, when asked how they thought Wifi worked, many participants were unsure. Only two participants drew routers of some kind. Shown in Figure 7 and 8. In one instance, the participant drew a Wifi hotspot and noted that this is where one could go to get free Wifi. In most cases, they simply included the curved line symbol used to indicate connection strength.

Figure 7: Illustration – Participant's illustration of how Wifi works.
The image features a Wifi router and depicts the activity of connecting to a Wifi network.

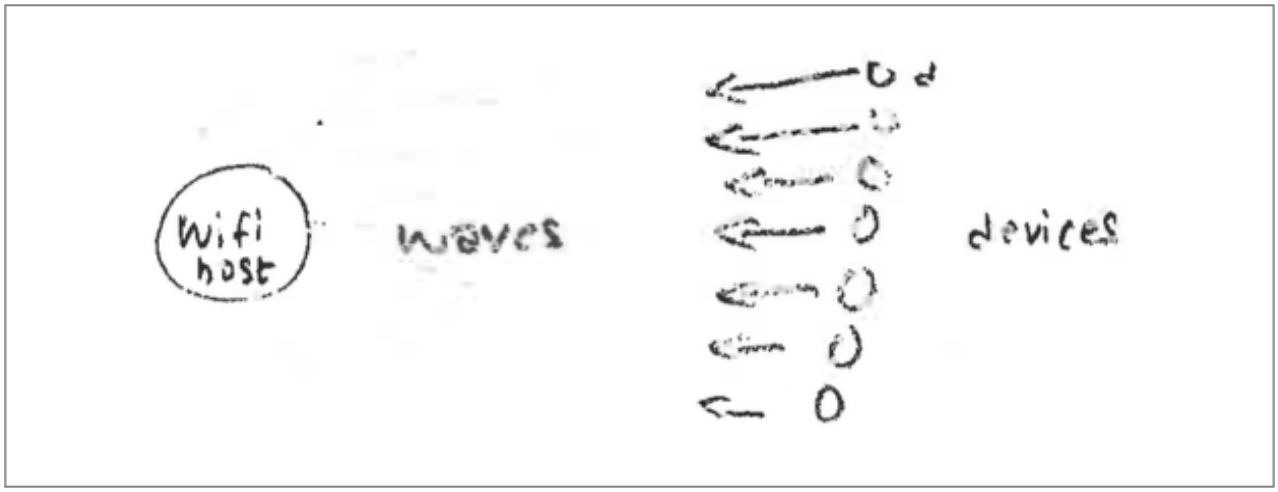

Figure 8: Illustration – Participant's depiction of how Wifi works.
The image depicts a "Wifi host" and "waves".

Their uncertainty and the limited detail in their drawings suggest a lack of exposure to Wifi and show how inaccessible Wifi is to the participants.

While these drawings could suggest that the participants have a superficial understanding of how networks function, some of the details included in their drawings demonstrate careful observation of the elements of network technology visible to them. As mobile centric users, they typically have a consumerised, rather than practical understanding of how networks function.

For example, when the participants drew mobile phones in their illustrations of Bluetooth, they often included the name of the manufacturer on the device, be it Samsung, Nokia, Blackberry

or Huawei. To show that a file transfer or download was taking place, many of the participants drew an up and down arrow beside each other to illustrate this. The more detailed representations of the mechanics of Bluetooth connections, along with the logo, reflect both the complexity of Bluetooth as a technology and their daily practice using Bluetooth, despite its complexities (Walton et al, 2012). By contrast, the predominant representation of Wifi (logos) demonstrates that they are familiar with Wifi despite not being entirely sure of the mechanics thereof.

Their detailed knowledge of Bluetooth, despite the fact that it is notoriously difficult to use, gives a sense that this is where their attention is focused and that the participants are disconnected from other aspects of networking. Thus their access to digital literacy is configured differently, especially when compared to Northern contexts (Ito et al 2009). As mobile-centric users, these young people are perhaps positioned as "users" of networks – people who use networks, with less access to their functioning - rather than network "owners" who have a better sense of how systems work.

Their illustrations of Bluetooth, Wifi and the internet could be used to critique theories around the "net generation". The similarities evident in the drawings illustrate a shared community of understanding fostered via the participants' reliance on their peer networks ((Lave and Wenger, 1991). Their extensive understanding of an older wireless technology like Bluetooth and limited understanding of more modern networks like Wifi and the internet, as shown in their drawings, highlight the importance of considering various factors before assuming that all young people, by virtue of being born in the digital era, can be dubbed "digital natives" and are expected to have a comprehensive grasp of technology (Erstad 2011; Thinyane, 2010; Bennet and Maton, 2010; Brown and Czerniewicz, 2010).

Me, My Selfie and I

The media found on the tablets links to Vanden Abeele's (2015) writings about how mobile media practices allow youth to assert their distinctiveness. Both male and female participants showed an interest in taking selfies. Despite a general lack of exposure to tablets across the sample, the participants were quite comfortable with the devices and had no trouble using them during the coding workshop at UCT. The camera proved popular. Because their use of the tablets was limited to inside the computer lab, selfies and shots of other participants formed their subject matter.

Female participants regularly pouted and tilted their heads to get the best shot. This conforms to Mascheroni, Vincent and Jimenez's (2015) suggestions that young girls capture selfies to conform to sexualised stereotypes, with the ultimate hope of gaining acceptance from their peers. "Girls like to take pictures of themselves more than boys because girls think they are

more beautiful and matured than boys," noted one female participant. "I do take selfies but I don't like them. I take them to please my friend who likes the camera. I think girls take more selfies because they like to be noticed. Boys also take selfies but I don't know why they do it," stated another female Ikamvanite. Despite perceptions around photography, and selfies specifically, being more popular among females than males (Berry and Dieter, 2015), male participants also showed an interest in taking selfies. One male participant took 38 selfies – by far the largest amount across the sample.

Male participants downloaded photography and selfie apps that allowed them to edit and add customise their photographs – these included My Camera, Sketch Guru and Selfie Frame. Female participants added filters, frames and overlaid text onto their photographs. Two of the Ikamvanites edited and then renamed images with their nicknames or name. The downloading of apps to experiment with pictures and the editing of pictures demonstrates that the participants want to take ownership of the media they are creating by adding personal elements to their creations. Some of the participants used their tablets to shoot video content but this was again limited to capturing activities within the classroom. The participants captured videos of others working and presenting their final digital stories to the group. Several expressed a little extra creativity – singing while shooting a video or experimenting with different filters. One particular Ikamvanite expressed a particular interest in video; taking a video of himself posing and pouting and another documenting himself rapping in isiXhosa.

When given the opportunity to draw pictures using their tablets, the participants drew human figures, faces, trees and various shapes. Many wrote their names or nicknames or signed their signatures. Logos also proved popular – a red ribbon with the words "HIV Aids", a no smoking sign and the Apple logo. (Detailed below in Figure 9). These illustrations demonstrate that the participants are learning from and engaging with media content, campaigns and brands despite their low levels of access to digital technologies. This exposure could be via social networks or interactions with their peers. In several instances, the participants expressed a strong sense of ownership over the content they had created during the workshops. One Ikamvanite changed his tablet interface by setting a picture he drew of a masked man as the background on his tablet (See Figure 9).

At the close of the workshop some participants expressed concerns that they were losing the content on their tablets and wanted to know if they would be provided with the same tablet – "their tablet" – during similar workshops in the future. One noted that he had customised the device to his liking and wanted to access his downloads and content in the future. Many of the participants brought their own MicroSD cards to the workshop or put SIM cards into the tablets to easily transfer content from the tablets to their own mobile devices. As Alexandra, (2008) noted in discussions around digital media use and storytelling, this content provides an outlet

for creative self-expression and dialogues. In this case, the participants engaged with the media they created by personalising their tablets.

Another way to explore their relationship with technology and media artefacts is to unpack what content the participants would like to share and with whom.

Figure 9: Drawings produced by the participants during the UCT workshop.
These images illustrate different things the participants drew during the UCT workshop

Media Sharing Preferences

The participants were asked what they would like to do with the drawings, selfies, photographs and digital stories they created in their groups. Sharing their creations via Bluetooth proved the most popular across most categories; the participants also favoured the option of copying the content onto their own device (shown in Figure 10) below. Even in a situation where the participants had access to Wifi, they opted to engage in sharing methods that were familiar to them; co-located sharing via Bluetooth.

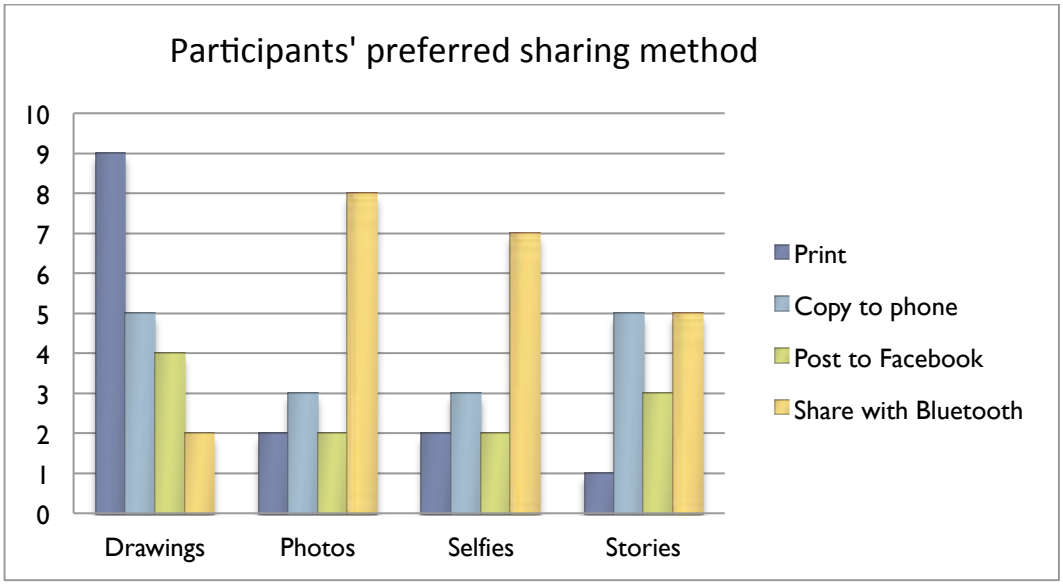

Figure 10: Participants' preferred sharing method.

The graph shows that the participants were most keen to share content with others via Bluetooth.

The participants were most keen to share their media creations with their friends. Shown in Figure 11 below. Their preference for sharing with their friends furthers assertions around the homophilous nature of their close tie networks; illustrating their belief that people similar to them will be interested in what they produced. Only three participants wanted to share with their Facebook friends. This apparent lack of interest in Facebook could relate to a lack of confidence to share their creations in such a public forum. Alternatively, it could be explained by their preference for offline sharing networks; be it due to familiarity, understanding, popularity among peers groups or the result of a general lack of access. This finding links to research by Walton et al (2012: 403) around the popularity of "peripheral networking" despite the availability of internet access.

- Peers: I shouldn't have done it.

  This story is about the dangers of cyber bullying.

  Snazo is very excited about the new laptop she gets for her birthday. She creates a Facebook account so she can speak in internet slang with all of her friends. She receives a message saying that someone has posted a lie about her on Facebook. The lie being that she had an abortion. Since the post, she cannot eat, sleep or go outside. Her friend Thando pays her a visit to advise her about her situation. Snazo blocks the person who wrote the message from her Facebook account and can now use the internet more wisely.

  The alternate (negative) ending to this story sees Snazo finding out that her friends posted the message and they have a fight. Snazo becomes a cyber bully herself and creates nightmares for others.

- Potential Funders – I'm grateful to Ikamva Youth

  This story is about how a student's hard work saw him being accepted into UCT.

  Abongile is one of many bright children who live in Makhaza, Khayelitsha. He loves school but does not have a proper place to study at home. His schoolmates criticise him for studying during the weekends. He searches online for places to study but has no luck. A librarian informs him about the Ikamva Youth Offices, he pays them a visit and fills in a form. He is informed of his acceptance into Ikamva Youth – the first step towards achieving his dream of going to UCT. With the help of Ikamva Youth, Abongile achieves his dream of going to UCT.

  The alternate (negative) ending to this story sees Abongile's teachers and other adults not understanding why he has to study after school. He decides to give up studying over the weekends. His grades decrease and he does not achieve his dream of going to UCT.

In all of the three stories, the protagonist is rescued or aided by his or her peers. While Snazo and Anelisa are also challenged/threatened by their peers, they are able to reach a positive outcome through the help of a peer. "They definitely are more inclined to go to a peer for help than their parents because they are at a level where they understand each other. At times, their parents don't really understand what they are going through. The first point of reference is always their peers," says Ikamva Youth tutor, Yanga Tyoti. In the final story about Abongile's journey to UCT – it is his teachers and other adults who attempt to thwart his success by questioning why he is studying so much. The fact that Abongile gets his own laptop – a device that two thirds of the group have limited or no access to – speaks to their perceptions of

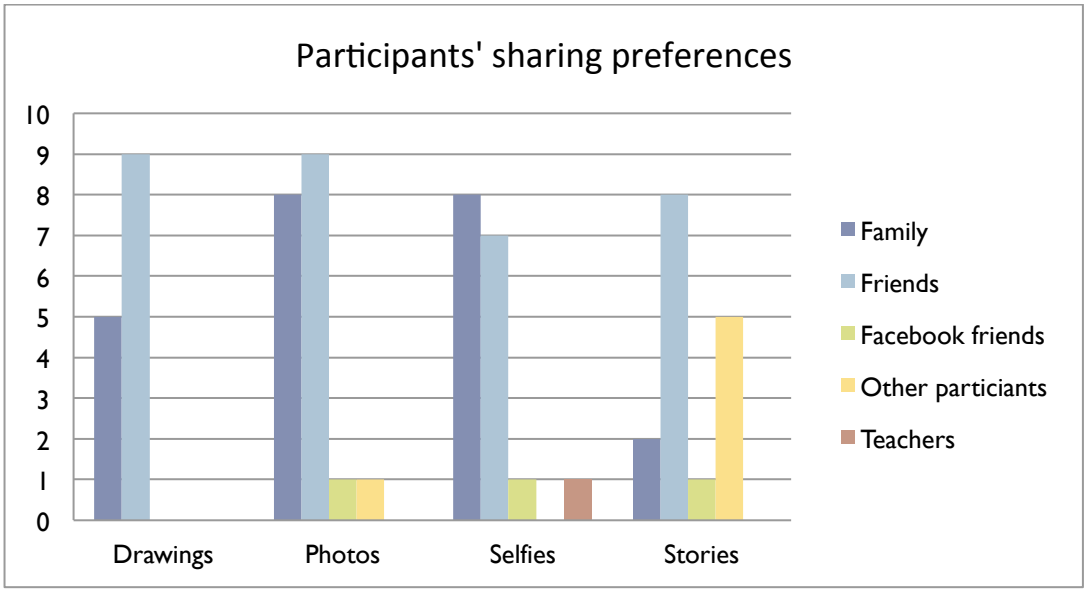

Figure 11: Participants' sharing preferences.

The participants were most keen to share content with their family and friends; minimal interest was shown in sharing with Facebook friends.

Coding Digital Stories

The digital stories reveal the importance of peer support in social mobility, the role of peers in coping within a school environment and also in developing digital literacies. The common thread of the three stories is learning from peers. With the help of an Ikamva tutor, three groups of participants developed three digital stories during the workshops. Each group chose a target audience, and planned to share the story with this audience, namely, their younger siblings, peers and potential funders.

A description of each story can be found below:

- Children: My first day in Primary School

  This story follows a student on her first day at primary school.

  Anelisa's mom drops her off at school and gives her R5 for lunch. She enters the school gate but doesn't know where to go. The bell rings and she needs to get to Grade 1B but she is lost. Suddenly Nongayi comes along and steals her money. Leaving Anelisa lost and moneyless. Shods sees her crying and helps her get her money back. They arrive together at Grade 1B.

  The alternate (negative) ending to this story sees Anelisa challenging Nongayi who then locks her in the broom closet. She misses her first day and goes home with no friends.

technology and the role they believe ICTs plays in achieving success. Similarly, the value of being accepted into a programme such as Ikamva Youth is also highlighted. Both of these form an integral part of the protagonist's journey to UCT. This also highlights their perceptions of the importance of supplementary programmes that are run to support more formal learning practices. This is part of the Ikamva Youth ethos, which offers tutoring, mentorships and career advice to young people in an effort to help them improve their marks, access post-school opportunities and improve awareness around what careers are available to them.

According to another tutor, Lungile Madela, the participants' choice of characters and the plot ties into their interests as youth, what they are learning about young people at school and at Ikamva Youth. "When I suggested that they come up with something for adults, they weren't comfortable creating something for adults or their parents because they don't know how to see the world from their point of view. They don't really know what adults like. It was hard for them to think about creating a story that was engaging for an adult," said Madela. The digital stories were also translated into isiXhosa, the first language of most of the sample. Totyi helped the students write Abongile's story and she highlighted how much the Ikamvanites enjoyed translating their digital stories into their home language. "The stories were taken from the township. The most common language spoken in the township is their language. When you translate the stories into isiXhosa, it was more relatable and deeper for them." According to Madela, the participants seemed to take a lot of pride in translating the stories into isiXhosa; correcting her when she used slang terms rather than the formal isiXhosa translation. "They were excited about translating the stories. They kept having discussions about what words to use to match the real meaning of the English words."

Conclusion

Ikamvanites are developing an understanding of ICTs mainly from their peers. The prevalence of informal/peer learning networks gives rise to largely mobile-centric interactions with technology. The mobile youth culture that has emerged due to peer learning networks is manifested in offline and co-located sharing practices and a distinctly media-based understanding of how networks function. The group's distinctive mobile youth culture gives rise to unique technicities; with males perceived to show greater interest in downloads and games; while photography and selfies are described as a distinctive aspect of female technicity. Their sharing habits and the content created by the participants indicates the importance of peer learning as part of their education and in their encounters with digital technology. The importance of peers will be unpacked at length in the following chapter.

5. Homophilous Networks – The Power of Peers

As discussed in Chapter 2, strong ties in a social network are people with whom a person has a close connection, frequent contact and a level of intimacy; while weak ties exist between individuals who communicate infrequently and do not share a close relationship (Garton, Haythornthwaite and Wellman, 1999). The focus of this study is to explore the participants' situated learning within ego-centric social networks. In this chapter, I unpack the Ikamvanites' relationships with their strong ties and detail how these networks socialise them into certain kinds of ICT knowledge. The chapter will also discuss the importance of weak ties. "Weakly tied persons, although less likely to share resources, provide access to more diverse types of resources because each person operates in different social networks and has access to different resources" (Garton, Haythornthwaite and Wellman, 1999: 80). This study will argue that the participants may not be developing close relationships with the people they interact with at Ikamva Youth but the learning that occurs via these weak tie communities are nonetheless responsible for the transfer of crucial information, especially about ICTs (Lave and Wenger, 1991).

In 2003, the South African government set out to ensure that "every South African learner in the general and further education and training bands will be ICT capable by 2013" (Department of Education, 2003:10). However, my findings will show that teachers and schools are not an important part of technology learning networks. The non-existent role of teachers and schools in ICT learning networks means that the participants are learning about technology primarily from their peers, Ikamva Youth and some family members. As a result their repertoires are primarily mobile-centric in nature.

Their strong tie social networks include a disproportionate number of female family members – more mothers and aunts, than fathers and uncles. Possibly due to a higher incidence of female-headed households mentioned in earlier chapters. These feminised home networks as a source of informal learning are fostering gendered technicities. Similarly, the participants' close peer relationships were largely homophilous and the study will argue that this gender and age homophily also fosters distinctive technicities, particularly around mobile device and media use. The participants regard the ICT knowledge of their male peers more highly than that of their female peers; with photography deemed a distinctive aspect of young women's technicity.

While global studies of youth culture and digital literacy (Perrin and Duggan, 2015; Livingstone, 2011) reveal how young people are using computers to participate in high status practices; race, class and gender differences mean that this sample of young people are not able to engage in the same behaviours and access the same resources as their wealthier counterparts

do. The dissertation will argue that their isolated learning networks, as well as class and gender, result in gaps in ICT knowledge – in this case, around ICT careers.

Media Learning within Peer Groups

Learning from both weak and strong ties proves important. As could be expected, family and peers emerged as the most important groups in the participants' lives. Roughly half (49.6%) of the close relationships discussed were with family members. Their adolescence, coupled with the fact that they live in a community lacking reliable electricity and broadband (Census, 2011), may influence their tendency to mention people in their close proximity (in this case, family members) as important people in their lives. Peers play an almost equally important role; with just under 45% of the relationships in the ego-centric social networks being with peers. The prominence of peers illustrates the importance of having relationships with people who are at similar stages in their lives.

Most (72.4%) peers also live in Makhaza and are likely to be facing the same challenges, engaging in the same activities and following the same trends as the participants. Male participants placed slightly more importance on their peer relationships than their female counterparts. The number of peer relationships featured as part of the male participants' networks was marginally higher than the number of family members – 51% peers; 48% family members. The female participants included more family members than peers in their networks; over half of their closest relationships (51%) were with family members and 37% of the relationships were with peers. This may relate to the age disparity between the participants, with males being marginally older on average than the females in the group.

According to the participants, their peers are above average in terms of tech knowledge. Close to three quarters (71%) of their peers were deemed to know "a lot" about technology (ranked 4 or 5). The participants were most confident about their peers' understanding of photography; as is shown in the chart (Figure 12) below. The participants also ranked their peers favourably in terms of smartphone knowledge and knowledge of the internet. The participants were least confident about their peers' knowledge of computers. A strong smartphone and internet aptitude and limited computer knowledge links to findings around mobile youth culture and mobile-centric internet use detailed in the previous chapter.

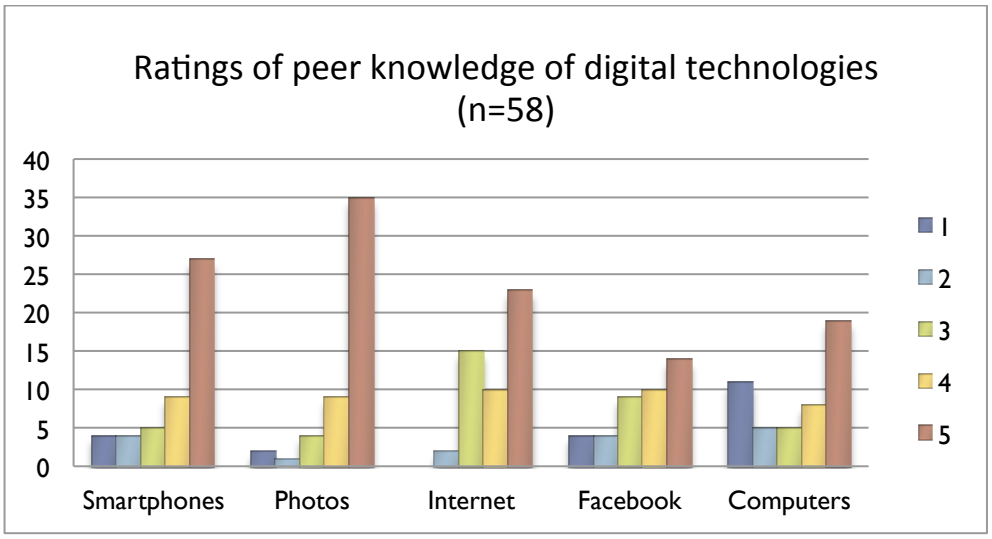

Figure 12: Ratings of peer knowledge of digital technologies.

Teaching Technology

The number of formal educators included in the strong tie networks is negligible. A single Ikamvanite mentioned two tutor and two teacher relationships as part of her networks; meaning that half of her network was made up of "formal educators". Only one other participant included a relationship with a teacher in her network. These two could be described as outliers because they included relationships with teachers and tutors in their networks. Participants were most confident of their teachers' knowledge of the internet, smartphones and computers (See Figure 13). They ranked teacher knowledge of Facebook and photography poorly.

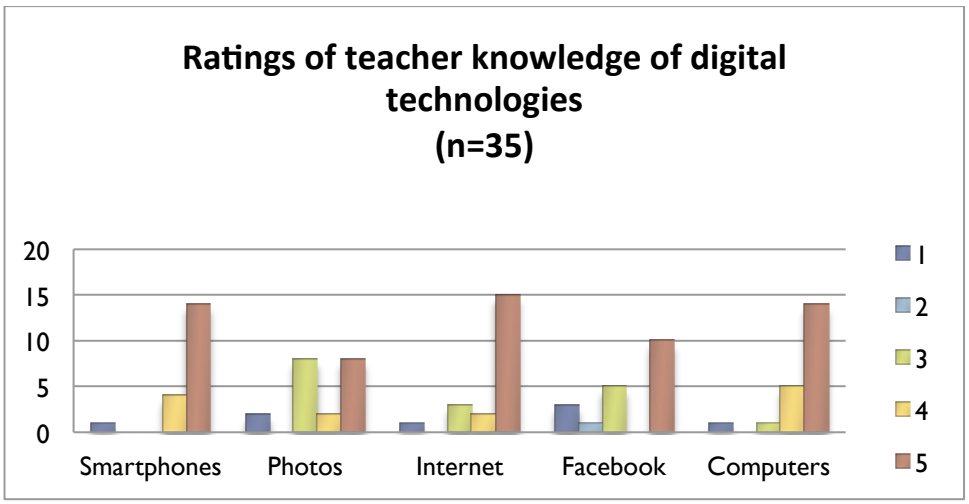

Figure 13: Ratings of teacher knowledge of digital technologies.

Follow-up interviews were conducted with the two participants who included teachers as strong ties. When asked why they included these formal educators in their networks, the one participant noted: "I come to my tutors at Ikamva and ask them for help because they are here to tutor us and give us help. I think some of them know a lot about the internet. I would rather ask a girl for help because I feel free when I speak with a girl. They are important because they give me help." She noted that she has no exposure to ICTs with her teachers at school and is unsure how much her teachers know about technology. Despite this, she would still approach them for help. "I included my teachers because they showed me the way to go. They encouraged me to the kind of girl I am today. I think teachers and tutors can help me more than my friends because when I am with my friends we just chat. I don't think my friends know a lot about technology." The other participant who included a teacher in her network confessed that she would not go to them for help. "I do think they know a lot but won't ask them for help because it's not normal. I wouldn't ask the tutors because they don't know about smartphones." These two participants may have misunderstood the mapping task. They seem to have included teachers and tutors (weak ties) in the networks we intended as mappings of their strong ties.

Network Homophily

Overall, the strong tie networks featured more relationships with females than with males. This was particularly evident in the family grouping with more mothers and aunts and less fathers and uncles being mentioned; again relating to the number of female-headed households in the area. Female participants had more women in their strong networks; 71% female relationships; 29% male relationships. Female participants' peer networks were more homophilous by gender than those of the male participants. They cited four times as many same sex peers as opposite sex peers. The male peers included in the female participants' ego-centric networks were mostly family members (brothers or male cousins). Only one of the female participants included a peer relationship with a male friend in their closest network.

Male participants exhibited a near even split between males and females included in their ego-centric network diagrams – 49% females and 51% males. (See Figure 14 below). The male participants' peer networks were also homophilous, featuring twice as many same sex peers as opposite sex peers. Unlike the female participants, several of the male Ikamvanites included female friends (peers) in their networks. A third of the relationships discussed by the male participants were with female peers; the majority of which were friends (9); there was a single female peer family member (a cousin).

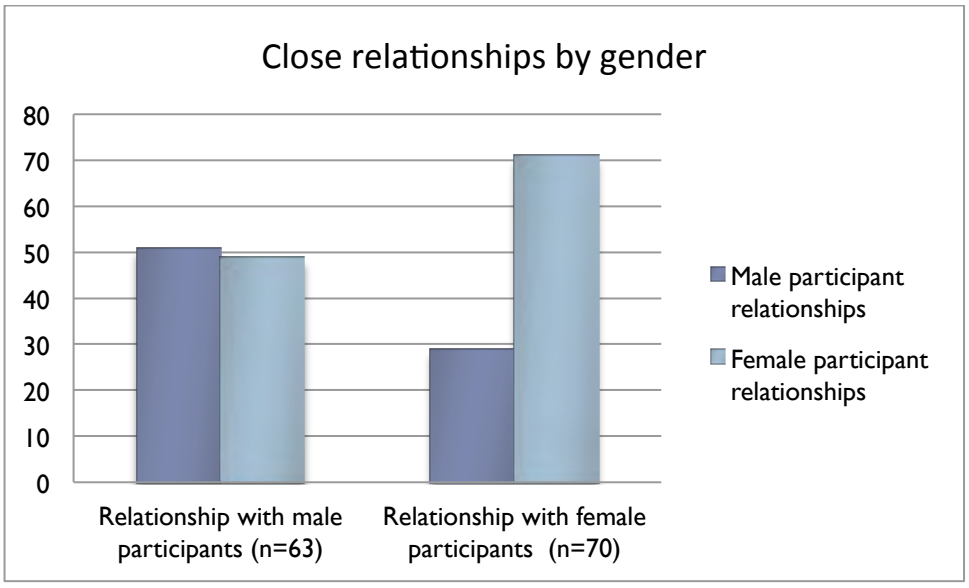

Figure 14: Close relationships by gender.
The graph shows the gender disparities between male and female participants' strong ties.

The participants' tendency to develop strong ties with those who are similar to them can be explained using the theory of assortative mixing and homophily (Cantijoch, Gibson and Ward, 2014). In social network analyses, assortative mixing or assortativity refers to the tendency of a person to develop close relationships with people who are similar in some way (Cantijoch, Gibson and Ward, 2014). The relationships between the participants and their peers; racial, educational and class disparities as a legacy of Apartheid and perceptions around gender and ICTs make all of these factors highly relevant in the context of this study. The prevalence of homophilous peer networks mean the participants are likely to be engaging in informal learning with individuals who share some similarity with them.

Much of the local research into stigma around gender has focused on normativity around HIV/AIDS (Abrahams and Jewkes, 2012) and how certain judgments are reserved only for women and relate to female sexuality. A male expressing his sexuality is deemed more acceptable than a female expressing her sexuality (Abrahams and Jewkes, 2012), which could suggest why the male participants mentioned more peers of the opposite sex than their female counterparts and vice versa. Being younger, the females may have been more tentative to cite male peers because young women can be deemed promiscuous for having too many relationships with young men. Male participants were slightly older than female participants, thus, their inclusion of female peers could reflect more heterosexual experience, but could also be an attempt to demonstrate their manhood and status, as having many relationships with females would likely reflect well on them within their community.

Unpacking the close network relationships in terms of age homophily suggests that the male participants rely more heavily on their peers, while the females' social networks included a more diverse range of close relationships in terms of age. Across both male and female participants there was a tendency towards younger strong ties. The chart (Figure 15) below graphs the 133 relationships, revealing that more than half of the close relationships (65%) constituted strong ties with people 29 or younger. The graph illustrates that male participants favoured peers of a similar age; 47.6% of their relationships were with people aged 15-19. As was mentioned in the Methods section, the male participants were generally older than their female counterparts – 7 of the 9 male participants were aged 15 and above, which means that most of the male Ikamvanites fall within this age bracket themselves. Female participants exhibited more variation across the different age groupings with no particular range taking preference. Male reliance on strong ties of a similar age explains the existence of distinct male technicities detailed in discussions around mobile youth culture in Chapter 4. The female participants' diverse range of strong ties according to age links to the preponderance of feminised home networks and resultant gendered technicities.

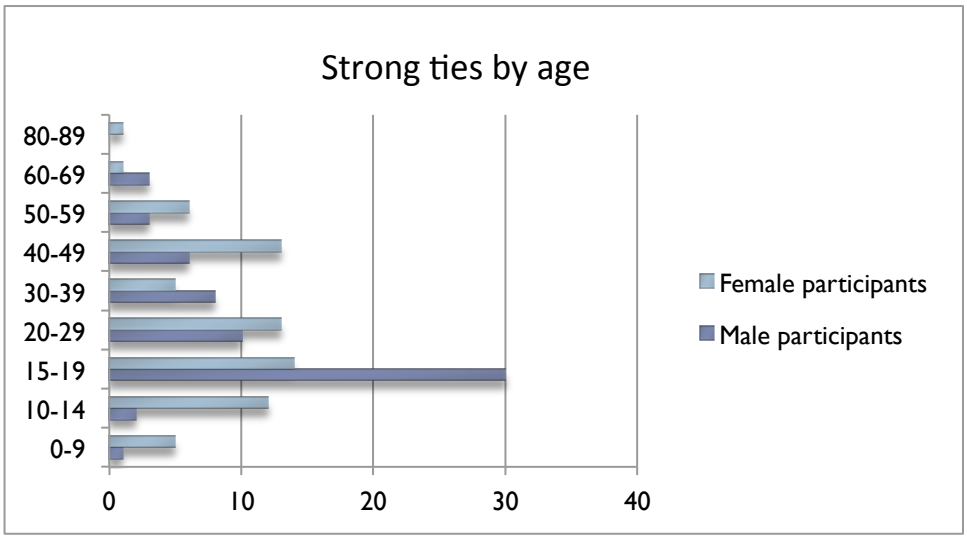

Figure 15: Strong ties by age.
Female participants' close relationships were more diverse than the males in the sample.

Gender and Distinctive Technicities

Figures 16 and 17 below illustrate how this data was reflected in terms of gender. Female peers' knowledge of technology was not as highly regarded as that of male peers. Male peers generally scored higher than female peers. Male peers outdid females in all but one category - photography. The participants deemed their male peers to be most knowledgeable about smartphones and computers and least knowledgeable about Facebook and photography. The

majority of the rankings of male peer technicity were 4 or 5, indicating that the participants believe their male peers have a good understanding of ICTs.

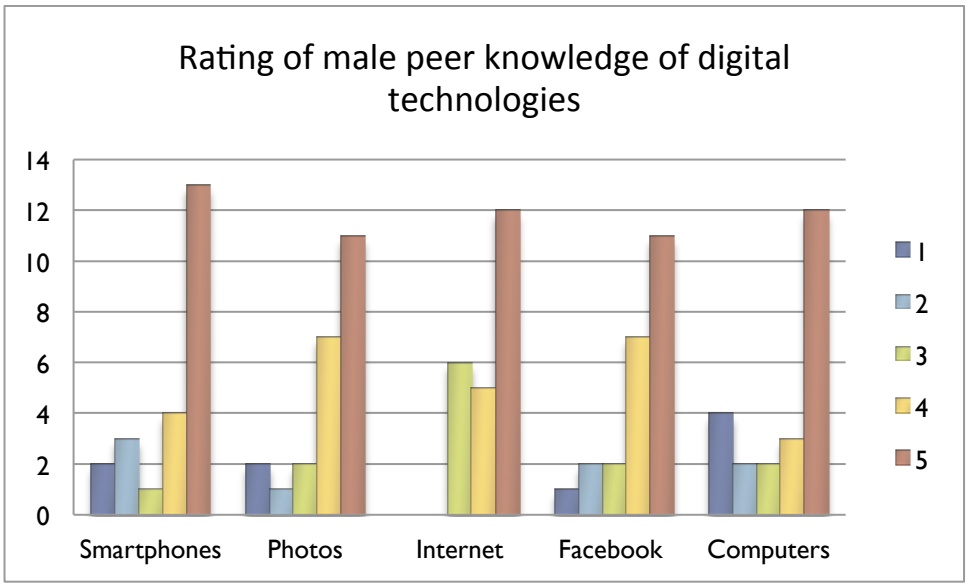

Figure 16: Rating of male peer knowledge of digital technologies.

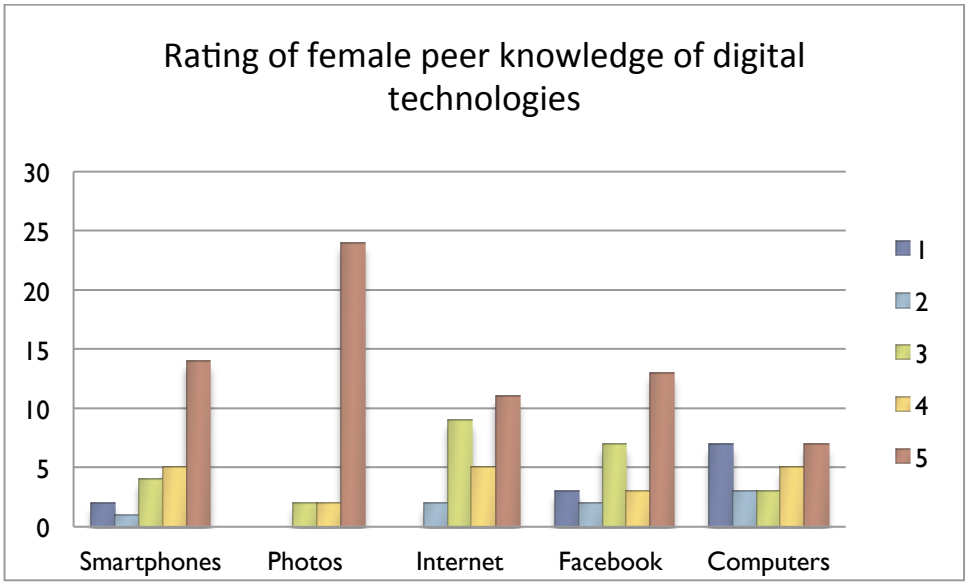

Figure 17: Rating of female peer knowledge of digital technologies.

Female peers' knowledge of technology (Shown in Figure 17 above) was ranked significantly lower across all categories. Photography was deemed a distinctive aspect of women's technicity. Females ranked highest in terms of photography and lowest at computers. Male and

female peers' scores were closest for knowledge of smartphones and there was the greatest variation in the photography category. Something like photography can be quite complex and technical but as an activity associated with women, it is not as highly regarded. The participants' ranking of female peers indicates their perceptions around what ICTs they deem to require higher status knowledge. These distinct technicities indicate that their limited digital literacy, discussed above, is not merely because schools have failed them but is also due to the emergence of organic mobile digital literacies. Learning networks are shaping and constructing unique digital identities; in this case, identities moulded around gender. Male/female stereotypes around technology aptitude were highlighted by this coder: "I don't know how I feel about asking boys for help with technology but I ask them because I have faith in them because they are boys. Things like technology, I think they are meant for boys. Since I am a girl, it is boring to me. It is fine for boys." These differences are clearly apparent in the graphs above and may hold some statistical significance, which could be investigated in future research with a more carefully constituted sample.

Ratings by gender show that female participants perceive their male peers to be more knowledgeable about ICTs. Female participants rated their male peers 5 out of 5 across all categories except one – computers. Male participants were more critical of their female peers. As was the case with the analysis above, female peers ranked highest in photography and lowest in computers. Differences in perceptions of male and female ICT knowledge could be explained by prevailing social norms and accepted beliefs that males are more interested in science/maths/technology than females (OECD, 2008).

Males are perceived to have higher status ICT knowledge and skills than their female counterparts and female peers' knowledge of technology were not as highly regarded. Thus, females consistently ranked lower in the computer category as computers are considered more technical than consumerised digital tools and platforms like smartphones and Facebook. Only in one area were female peers quite consistently ranked higher than their male counterparts – photography. The feminisation of photography could be juxtaposed with the ever-rising popularity of selfies (as discussed in Chapter 4). This feminised technicity holds that young women are more likely to take pictures of themselves (Berry and Dieter, 2015). For males and females, the proliferation of mobile devices has made cameras more accessible, positioning everyone to have a better understanding of photography. As a group, however, the participants and their peers seem to have developed distinct mobile literacies and thus it follows that their existing knowledge of mobile phones, networks and photography in particular should be integrated into South African strategies to improve digital literacy.

Self Assessment

The participants rated their own tech knowledge highly across all categories. As shown in Figure 18 below. They were most confident in the photography category; with only a single participant rating their photography knowledge as “a little”. The participants considered themselves least knowledgeable about Facebook. Their lack of confidence when using Facebook comes despite half the group reporting social media use at least once a week and several participants mentioning Facebook as an app they use most frequently. Half the group ranked their understanding of smartphones to be above average, which corresponds with the fact that more than half of the participants have their own mobile devices; a large portion of which are low-end smartphones. Despite little to no access to desktop computers, more than half of the participants were confident in their computer knowledge, rating themselves 4 or 5.

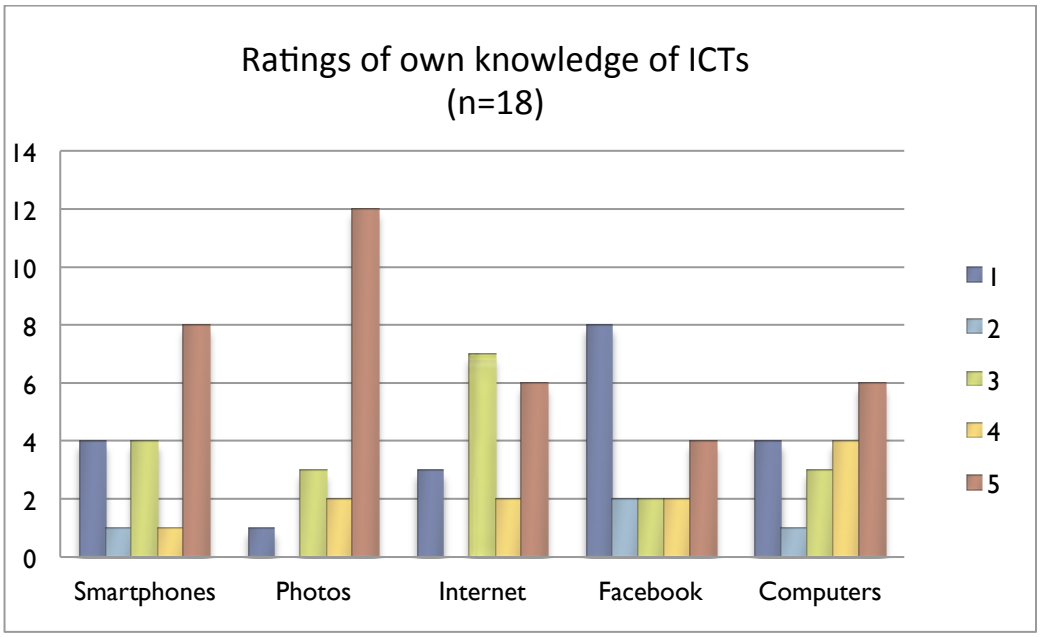

Figure 18: Ratings of own knowledge of ICTs.

Figures 19 and 20 below break down the participants’ ratings of their own tech knowledge by gender. Male participants rated themselves highly in the photography and internet categories and their lowest scores were for Facebook. Female participants also rated themselves the lowest in terms of Facebook knowledge. Reiterating that photography is a distinctive aspect of young women’s technicity, their highest ratings were in this category. Despite males consistently perceived to be more proficient with computers, the female participants ranked themselves above their male counterparts in terms of computer knowledge.

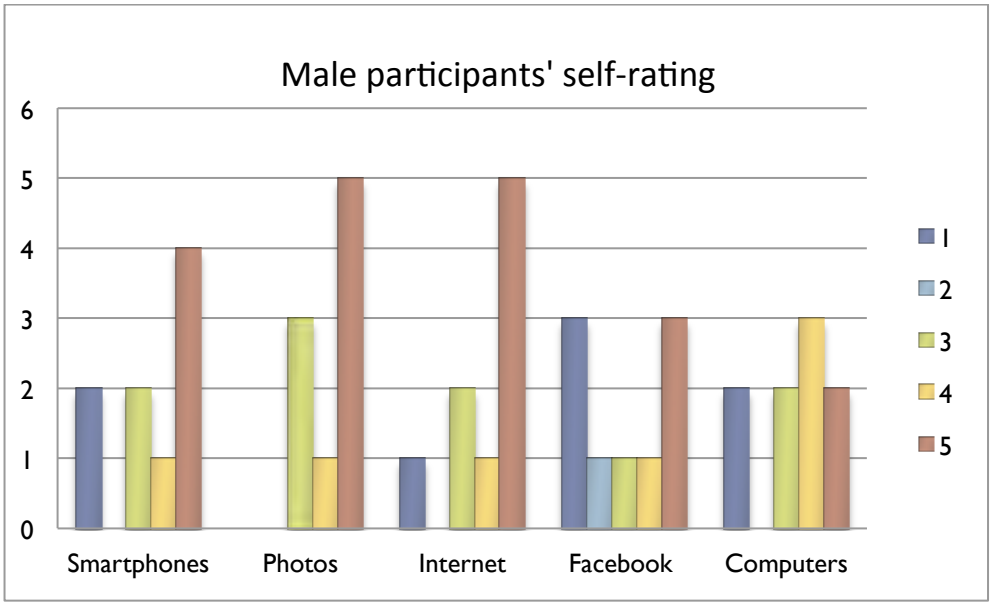

Figure 19: Male participants' self-rating.

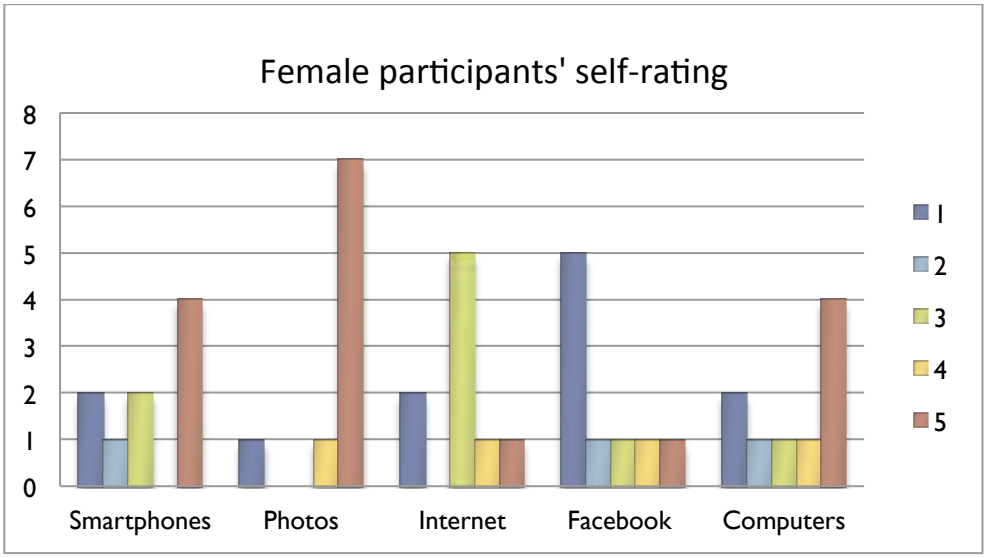

Figure 20: Female participants' self-rating.

Learning Networks

As discussed in Chapter 3, the participants were asked to outline what their various strong ties had taught them about technology. These areas of learning were grouped into various categories. Mobile literacy included taking selfies, using Bluetooth and sending messages etc., while computer literacy involves using a PC, printing documents and rebooting a PC etc. A detailed description can be found in Chapter 3. Despite the government's promises to develop digital literacy in South African schools, teachers and schools do not play an important role in

the participants' ICT learning networks. As shown in Figure 21 below. More than half (53%) of the teachers discussed had taught the participants nothing about technology. This is unsurprising given the lack of ICT access at schools reported by the participants. Some participants reported learning about the internet and Computer Literacy from their teachers. There was no mention of mobile literacy, downloads or games.

Peers have taught the participants a wider range of ICT skills. However, "nothing" was the most common response when the participants were asked about learning from peers. Participants had learnt the most about downloading and mobile literacy from their peers. As discussed in Chapter 4, this supports the notion of a distinctive mobile youth culture; with young people turning to their peer networks to learn how to download content and use mobile devices. Viewed from a different perspective, while the participants may be learning more from their peers, their learnings are situated in their closest peer networks, and thus closely linked to distinctive youth technicities and mobile-centric ICT use. When compared with the ICT aptitude of European students, as studied by Livingstone (2011), there is a definite gap in the sample's tech knowledge.

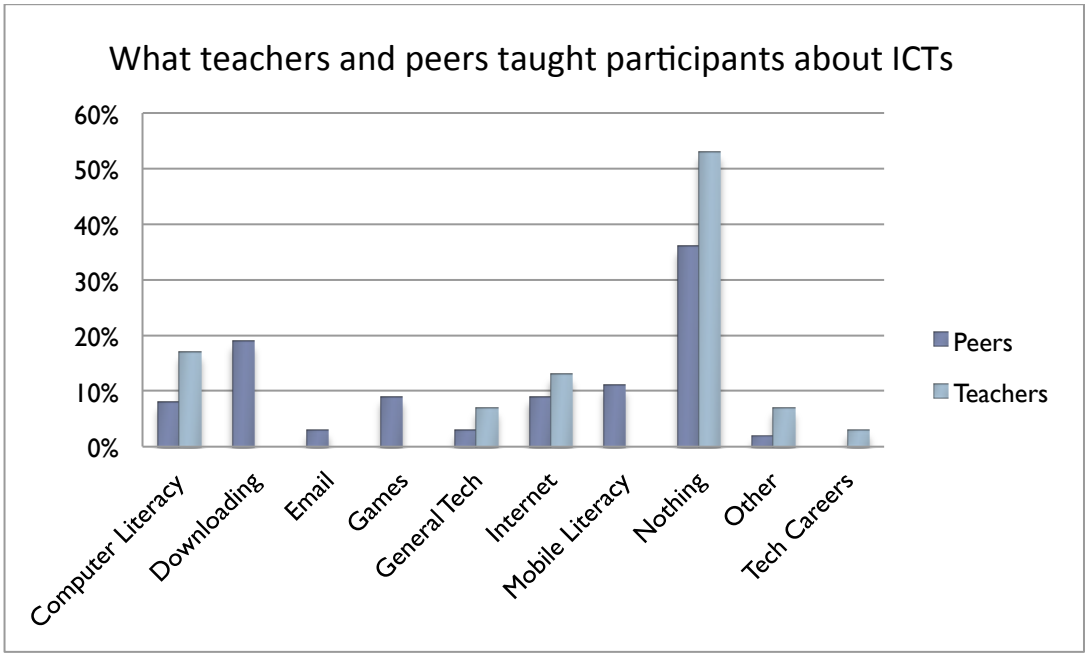

Figure 21: What teachers and peers taught participants about ICTs.

Figure 22 illustrates a gendered breakdown of what the participants have learnt from their peers. The group's lack of confidence in female technicities may be apparent from the fact that the majority of female peers were considered to have taught the participants "nothing" about ICTs. The media-driven nature of this mobile youth culture is apparent in that the predominant

skill learned from male peers was downloading. After downloading, mobile literacy, the internet and computer literacy were all relatively popular. Despite perceptions about gaming being the realm of young men, the sample learnt more about gaming from female than male peers. The limited regard for female technicities, coupled with high levels of confidence in the downloading skills of male peers demonstrations how young men and women are positioned differently within mobile youth culture. These notions around gender and ICT aptitude tie into Lave and Wenger's (1991) commentary around legitimate peripheral participation, suggesting that a newcomer's success within an established community of practice (in this instance young girls showing an interest in ICTs) is linked to their levels of access to and ability to learn from their more experienced counterparts (in this instance, their male peers who traditionally are perceived to be more tech savvy).

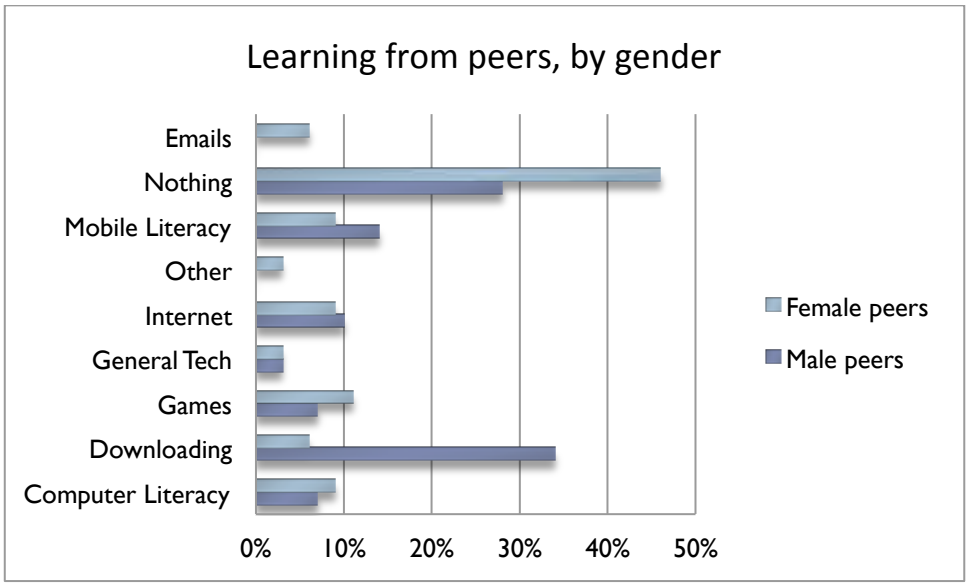

Figure 22: Learning from peers, by gender.

Technology in Real Life – ICT Careers

Participants were also asked to discuss what careers, if any, they knew of that involve the use of ICTs. This information is relevant in the context of the study because none of the participants' caregivers work in ICT fields. Common occupations included domestic work and employment in the hospitality industry. Many caregivers are unemployed. Due to the focus on networks of learning and understanding, the fact that none of the participants' strong ties work in ICT-related fields means that they have limited access to people in this industry and those who have ICT skills and interests. Their lack of exposure to employment in ICT fields, coupled with their isolated learning networks and their social status by virtue of broader community class dynamics, means that they are not exposed to people who can teach them about working in the ICT industry. This could explain the nuances in their understanding of ICT-related careers.

Responses revealed a limited exposure to technology careers. Several participants mentioned engineering; careers in IT and computer science teaching were also mentioned. Other careers that were mentioned included surgeon, social worker, train driver, pilot, medical lab worker, mechanic, game designer, hacker, electrician and DJ. Participants either expressed a strong interest in or dislike for the idea of one day pursuing that career. On several occasions, they voiced concerns that the career was "too hard". The participants' perceptions of these occupations was evident when one of the female participant showed interest in becoming an engineer, before stating that this occupation is "more for boys than for girls".

This chapter unpacks the role of strong ties in that the closest relationships in the Ikamvanites' ego-centric social networks reveal distinct technicities. These technicities are developed as a result of their largely homophilous peer networks and the race, class and gender dynamics that influence their learning networks.

Conclusion

The chapter also highlights the importance of weak interpersonal ties in the transfer of information. In this case, Ikamva Youth functions as a crucial node that is capable of linking youth to more knowledgeable peers, who are less closely connected (weak ties) but can pass on different forms of information to them. In this way, the community of practice (Lave and Wenger, 1991), formed through their involvement at Ikamva provides young people with access not only to digital technologies but also gives them access to a broader network and opportunities to fill gaps in their ICT knowledge. These gaps exist due to a lack of adequate training from schools and teachers and the limitations of their homophilous peer learning networks.

6. Conclusion

This study aimed to explore what a group of young South Africans know and understand about ICTs; unpacking their distinctive mobile youth culture, how they are learning about these tools and what their strong and weak ties are teaching them about various technologies. Living in an area where access to computers and the internet is scarce, support from adults is limited and ICT education is insufficient, these young people are developing their own, distinctive technicities. Their exposure to ICTs is largely mobile-centric and these informal learning networks have fostered a unique mobile youth culture.

Using a mixed method approach, this study was able to provide data on the ICT use habits, levels of understanding and learning networks of the selected group of participants. One-on-one interviews as part of a qualitative methodological approach proved valuable as the researcher could ask the interviewee to clarify their answer or pose follow-up questions to ensure a comprehensive and accurate understanding of the participants' answers was achieved. Focusing on nine males and nine females from Makhaza in Khayelitsha, this study cannot make any claims about youth living in low-income areas in South Africa but can describe the distinctive mobile youth culture of this specific group and make recommendations for future research with youth from similar backgrounds. Some of the key findings of this study form the basis of these recommendations.

Making Sense of Mobile Youth

As mobile phone penetration increases, young people are developing a definite mobile youth culture; shaped around their access to and use of these devices. For the study participants, this mobile youth culture is fostered through free, offline sharing methods; predominantly Bluetooth. Their meagre exposure to other networks has resulted in a surface level understanding of cloud-based networks. Playing games, sending instant messages and taking selfies were also part of their youth digital literacy. Their internet use is decidedly mobile-centric due to access limitations. With only a few participants having a computer at home and little to no exposure in schools, the sample are turning to their mobile devices to get online. Given their predominantly mobile-centric digital literacy, the participants were most keen to share and exchange content with their peers. Unlike the much connected youth learning about ICTs from a wide array of weak interpersonal ties, these kids are learning from people who are in the same position as them. Thus, the sample might experience a curtailed access to weak ties for learning online.

Informal/Peer Learning Networks

Formal educators and schools do not form part of the sample's ICT learning networks. The majority of the participants had learnt nothing about technology from their teachers. As outlined briefly above, this fosters distinctly mobile-centric technicities as the participants are predominantly learning about ICTs from peers in a similar socio-economic situation to themselves. The participants' close relationships revealed a reliance on peers and a high degree of confidence in the extent of their peers' ICT knowledge. This dependence on peers means that the participants' knowledge is largely mobile-centric. Consequently, race, class and gender are closely linked to youth technicities and the participants' learning networks.

Weak interpersonal ties also proved important. The interactions with other learners and with tutors at Ikamva Youth provide the participants with opportunities to connect with a wider range of ICTs and digital information despite the limited learning opportunities they experience due to their status in broader society, their lacklustre exposure at school and the failure of the SA government to meet it's 2013 goals to provide all learners with access to digital literacy. Situated learning within Ikamva Youth as a community of practice is responsible for transferring a great deal of information about technology.

This massive gap in access to and learning about ICTs means that the South African education system is continuing to fail disadvantaged youths. While they are learning via informal avenues, these "digital natives" still need access to the high status skills they are unlikely to get from their close networks.

Network Homophily

While the participants' ego-centric networks featured a preponderance of female family members; their close peer relationships were largely homophilous in relation to gender. These homophilous peer networks foster distinctive technicities. Female participants' close tie networks were narrow in terms of gender but diverse in terms of age. Male participants, on the other hand, had more evenly split gender networks but their close relationships were predominantly with individuals of a similar age. Male participants and their male peers are deemed to be proficient at downloading content and using computers; while the knowledge of female participants and female peers is considered somewhat more limited – expertise in photography and taking selfies. These feminised technicities and the ICT knowledge of female participants and peers are less highly regarded than that of male counterparts. The dominance of males in the ICT industry is being reproduced in these informal settings through socialisation.

Distinctive Technicities

While international studies (Perrin and Duggan, 2015; Livingstone, 2011) and research focused on digital youth and "digital natives" (Prensky, 2001) suggest how young people are accessing and utilising mobile and digital technologies, this study revealed different findings. This sample's level of exposure to ICTs is limited and they are not engaging in the same activities as their international counterparts. Local technicities are intrinsically linked with race, class and gender – all of which impacts on their levels of access and use. These young people do not have computers in their homes, are not being taught about computers at school and are developing their digital identities via informal learning networks. Digital native theories and international digital literacy research findings fail to consider the complexities around ICT access and infrastructure and digital literacy that dictate the behaviours of young people living in the developing world.

Anyone looking to approach digital literacy in South Africa should consider how young people are interacting and learning via weak and strong interpersonal relationships. Their unique technicities, shaped by socialisation and broad social factors such as race, class and gender, present future researchers with interesting avenues to rethink and expand future digital literacy curricula.

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8. Reference List

Abrahams, N. and Jewkes, R. (2012). Managing and Resisting Stigma: A Qualitative Study among People Living with HIV in South Africa. *Journal of the International AIDS Society*, 15 (2).

Ackland, R. and Shorish, J. Political Homophily on the Web. In Cantijoch, M., Gibson, R. and Ward, S. (Eds.) (2014). *Analysing Social Media Data and Web Networks.* New York: Palgrave Macmillan.

Albury, K. (2015). Selfies, Sexts and Sneaky Hats: Young People's Understandings of Gendered Practices of Self-Representation. *International Journal of Communication,* 9, 1734-1745.

Alexandra, D. (2008). Digital Storytelling as Transformative Practice: Critical Analysis and Creative Expression in the Representation of Migration in Ireland. *Journal of Media Practice*, 9(2), 101-112.

Alfreds, D. and Van Zyl, G. (2015). *Last Throw of the Dice for Mxit.* Available from: www.fin24.com. [24 October 2015].

AMPS. (2015). *All Media and Products Survey, Individual (Jun '14 – June' 15).*

Anzul, M., Ely, M., Friedman, T., Garner, D. and McCormack-Steinmetz, A. (2003). *Doing Qualitative Research: Circles within Circles*. London: Routledge.

Baker, E. A. (2010). *The New Literacies: Multiple Perspectives on Research and Practice.* London: Guildford Press.

Balnaves, M. and Caputi, P. (2001). *Introduction to Quantitative Research: An Investigative Approach.* London: SAGE Publications.

Bennett, S., Maton, K, & Kervin, L. (2008). The "Digital Natives' Debate: A Critical Review of the Evidence. *British Journal of Educational Technology*, 39 (5), 775-86.

Bennet, S. J. and Maton, K. A. (2010). Beyond the "Digital Natives" Debate: Towards a More Nuanced Understanding of Students' Technology Experiences. *Journal of Computer Assisted Learning*, 26(5), 321-331.

Bennett, A. and Robards, B. (2014). *Mediated Youth Cultures: The Internet, Belonging and New Cultural Configurations*. Melbourne: Palgrave Macmillan.

Berger, G. and Sinha, A. (2012). *South African Mobile Generation: Study on South African Young People on Mobiles*. New York: UNICEF Division of Communication, Social and Civic Media Section.

Berry, D. M. and Dieter, M. (Eds.) (2015). *Postdigital Aesthetics: Art, Computation and Design.* London: Palgrave Macmillan.

Bers, M. U. and Noam, G. G. (2012). *New Media and Technology: Youth as Content Creators.* New Jersey: John Wiley.

Best, C. (2015). Narcissism or Self-Actualisation? An Evaluation of "Selfies" as a Communication Tool. In Coombs, D. S. and Collister, S. *Debates for the Digital Age: The Good, The Bad and The Ugly of our Online World*. Santa Barbara: ABC-CLIO.

Boeije, H. R. (2009). *Analysis in Qualitative Research.* London: Sage.

Bovee, C., Voogt, J. and Meelissen, M. (2005). Computer Attitudes of Primary and Secondary Students in South Africa. *Computers in Human Behaviour,* 23. 1762-1776.

Boud, D. (2001). 'Introduction: Making the Move to Peer Learning'. In Boud, D., Cohen, Ruth & Sampson, Jane (Ed.). *Peer Learning in Higher Education: Learning From & With Each Other.* London: Kogan Page Ltd, 1–17.

Boud, D., Cohen, R. and Sampson, J. (2014). *Peer Learning in Higher Education: Learning from and with Each Other*. London: Kogan Page Limited.

boyd, D. (2007). *Why Youth Heart Social Network Sites: The Role of Networked Publics in Teenage Social Life. In Buckingham, D. (ed.) Youth, Identity and Digital Media*. The John D. and Catherine T. Mac Arthur Foundation Series on Digital Media Cambridge: MIT Press.

boyd, D. (2010). Social Network Sites as Networked Publics: Affordances, Dynamics, and Implications. In Papacharissi, Z. (ed) *Networked Self: Identity, Community, and Culture on Social Network Sites.* New York: Routledge.

boyd, D. (2014*). It's Complicated: The Social Lives of Networked Teens*. New Haven: Yale University Press.

Bray, F. Gender and Technology. (2013). In Wyer, M., Barbercheck, M., Cookmeyer,D., Ozturk, H. and Wayne, M. (eds.) *Women, Science and Technology: A Reader in Feminist Science Studies*. New York: Routledge.

Bromley, D. B. (1986). *The Case-Study Method in Psychology and Related-Disciplines.* Chichester: John Wiley & Sons.

Brown, C., Czerniewicz, L. (2010) Debunking the "Digital Native": Beyond Digital Apartheid, Towards Digital Democracy. *Journal of Computer Assisted Learning*. 26, 357–369.

Buckingham, D. (2005). The Media Literacy of Children and Young People: A Review of the Research Literature on Behalf of Ofcom. London: *Centre for the Study of Children*, *Youth and Media*.

Buckingham, D. (2006). Is There a Digital Generation? In D. Buckingham, & R. Willett (Eds.), *Digital Generations.* Mahwah, NJ: Lawrence Erlbaum Associates.

Burke, Q. and Kafai, Y.B. (2010). Programming & Storytelling: Opportunities for Learning About Coding & Composition. *IDC 2010*. Proceedings of the 9th International Conference on Interaction Design and Children (348-351). New York.

Burton, P. and Mutongwizo, T. (2009) Inescapable Violence: Cyber Bullying and Electronic Violence Against Young People in South Africa. *Centre for Justice and Crime Protection Issue Paper,* 8.

Campell, C. and MacPhail, C. (2002). Peer Education, Gender and the Development of Critical Consciousness: Participatory HIV Prevention by South African Youth. *Social Science & Medicine,* 55.

Campbell, C., Foulis, C. A., Maimane, S. and Sibiya, Z. (2005). The Impact of Social Environments on the Effectiveness of Youth HIV Prevention: A South African Case Study, *AIDS Care*, 17:4, 471-478.

Castells, M., Fernandez-Ardevol, M., Qiu, J. L. and Sey, A. (2009). *Mobile Communication and Society: A Global Perspective*. Cambridge: MIT Press

Coffield, F. (Ed.). (2000). *The Necessity of Informal Learning*. Bristol: The Policy Press.

Coiro, J., Knobel, M., Lankshear, C. and Leu, D. J. (2014). *Handbook of Research on New Literacies.* New York: Routledge.

Colley, H. P. and Malcolm, J. (2003). *Informality and Formality in Learning: A Report for the Learning and Skills Centre*. Leeds: University of Leeds.

Cresswell, J. W. (2003). *Research Design. Qualitative, Quantitative and Mixed Methods Approaches, Second Edition.* London: Thousand Oaks.

Cross, J. (2011). *Informal Learning: Rediscovering the Natural Pathways that Inspire Innovation and Performance.* San Francisco: John Wiley and Sons.

Department of Education. (2003). *Draft White Paper on e-Education.* September 2003.

Department of Women. (2015). *The Status of Women in the South African Economy*. August 2015.

DeWalt, K. M. and DeWalt, B. R. (2011). *Participant Observation: A Guide for Fieldworkers.* New York: Rowan Altamira.

Dicks, B., Mason, B., Coffey, A. and Atkinson, P. (2005). *Qualitative Research and Hypermedia: Ethnography for the Digital Age*. London: SAGE Publications.

Donner, J. and Gitau, S. (2009). *New Paths: Exploring Mobile-Centric Internet Use in South Africa*. Pre-conference Workshop at the International Communication Association Conference, Chicago.

Dovey, J. (2007). Transforming Audiences: Technicity and Identity in the Age of User-Generated Content. In: *Transforming Audiences,* Westminster University, London, 6-7 September.

Dovey, J. and Kennedy, H. W. (2006). *Game Cultures: Computer Games as New Media.* Berkshire: McGraw-Hill Education.

Dovey, J. and Kennedy, H. W. (2007). From Margin to Centre: Biographies of Technicity and the Construction of Hegemonic Games Culture. In Williams, J. P. and Smith, J. H. (Eds). *The Players' Realm: Studies on the Culture of Video Games and Gaming*. North Carolina: McFarland.

Drotner, K., Jensen, H. S. and Schrøder, K. C. (2009). *Informal Learning and Digital Media.* Cambridge: Cambridge Scholars Publishing.

Eisen, MJ. (2001). Peer-Based Learning: A New-Old Alternative to Professional Development. *Adult Learning*, 12 (1).

Erstad, O. (2011). Citizens Navigating in Literate Worlds. The Case of Digital Literacy. In Thomas, M. *Deconstructing Digital Natives: Young People, Technology and New Literacies*. New York: Routledge.

Etkin, E. (2013). Using Narrative Communication in a Mass- produced Youth Magazine as an HIV Prevention Intervention. *Journal of African Media Studies*, 5 (1).

Facer, K. and Furlong, R. (2001). Beyond the Myth of the "Cyberkid": Young People at the Margins of the Information Revolution. *Journal of Youth Studies*, 4(4).

Fonseca, J. R. S. and Xerez, R. (2013). How Latent Class Models Matter to Social Network Analysis and Mining: Exploring the Emergence of Community. In Ozyer, T., Rokne, J., Wagner, G.

and Reuser, H. P. (Eds.), *The Influence of Technology on Social Network Analysis and Mining.* New York: Springer Science & Business Media.

Fowler, F. J. (2013). *Survey Research Methods.* London: SAGE Publications.

Fox, M. F., Johnson, D. G. and Rosser, S. V. (Eds.) (2006). *Women, Gender and Technology*. Illinois: University of Illinois Press.

Garton, L., Haythornthwaite, C. and Wellman, B. (1999). Studying On-Line Social Networks. In Jones, S. (Ed.), *Doing Internet Research.* Thousand Oaks California, SAGE.

Gee, J. P. (2004). *What Video Games have to Teach us about Learning and Literacy*. Hampshire: Palgrave Macmillan.

Gillham, B. (2005). *Research Interviewing: The Range of Techniques.* Berkshire: McGraw-Hill Education.

Goggin, G. (2013). Youth Culture and Mobiles. *Mobile Media and Communication*, 1 (1).

Goggin, G., and Crawford, K. (2011). Generation Disconnections: Youth Culture and Mobile Communication. In R. Ling, & S. W. Campbell (Eds.), *Mobile Communication: Bringing us Together or Tearing us Apart?* The Mobile Communication Research Series Volume 2. New Brunswick, NJ: Transaction.

Goh, D. H., Ang, R. P. Chua, A. Y. K. and Lee, C. S. (2009). Why We Share: A Study of Motivations for Mobile a Media Sharing. In Liu, J., Wu, J., and Yao, Y. Y. (Eds.), *Active Media Technology: 5th International Conference, AMT 2009*, Beijing, China, October 22-24, 2009, Proceedings.

Granovetter, M. S. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78(6), 1360-1380.

Gregory, I. (2003). *Ethics in Research*. Cornwall: A&C Black.

GSMA. (2015). *The Mobile Economy: Sub-Saharan Africa 2015*. GSMA Intelligence.

Hager, P. (1998). Recognition of Informal Learning: Challenges and Issues. *Journal of Vocational Education and Training*, 50(4).

Hansen, D., Shneiderman, B. and Smith, M. A. (2010). *Analysing Social Media Networks with NodeXL: Insights from a Connected World*. Burlington: Morgan Kaufmann.

Haraway, D. J. (1997). *Modest_Witness@Second_Millenium.FemaleMan_Meets_OncoMouse: Feminism and Technoscience*. New York: Routledge.

Hargittai, E. and Walejko, G. (2008). The Participation Divide: Content Creation and Sharing in the Digital Age. Information, *Communication and Society,* 11(2).

Harrison, A., Smit, J. A. and Myer, L. (2000). Prevention of HIV/AIDS in South Africa: A Review of Behaviour Change Interventions, Evidence and Options for the Future. *South African Journal of Science*, 96.

Hewson, C. (2014). Qualitative Approaches in Internet-Mediated Research: Opportunities, Issues, Possibilities. In Leavy, P. (Ed.), *The Oxford Handbook of Qualitative Research.* Oxford: Oxford University Press.

Humphreys, A. (2015). *Social Media: Enduring Principles*. Oxford: Oxford University Press.

Hutchinson, S. A. (2001). The Development of Qualitative Health Research: Taking Stock. *Qualitative Health Research*, 11.

Ito, M. (2008). Foreword. In Buckingham, D. (Ed.), *Youth, Identity and Digital Media.* The John D. and Catherine T. Mac Arthur Foundation Series on Digital Media Cambridge: MIT Press.

Ito, M., Antin, J., Finn, M., Law, A., Manion, A., Mitnick, S., Schlossberg, D., Yardi, S. and Horst, H. A. (2009). *Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning with New Media*. Cambridge: MIT Press.

Ito, M. (2010). *Peer-Based Learning in a Networked Age.* Keynote address for University of Michigan's Enriching Scholarship.

Jaffer, S. (2010). Educational Technology Pedagogy: A Looseness of Fit Between Learning Theories and Pedagogy. *Education as Change*, 14(2), 273–287.

Jarvela, S. (2011). *Social and Emotional Aspects of Learning*. Oxford: Elsevier.

Jenkins, H. (2006) *Convergence Culture: Where Old and New Media Collide.* New York and London: New York University Press.

Kandel, D. B. (1978). Homophily, Selection and Socialisation in Adolescent Friendships. *American Journal of Sociology,* 84(2). 427-436.

Konzack, L. (2007). Rhetorics or Computer and Video Game Research. In Williams, J. P. and Smith, J. H. (Eds.), *The Players' Realm: Studies on the Culture of Video Games and Gaming.* North Carolina: McFarland.

Kreutzer, T. (2009). *Generation Mobile: Online and Digital Media Usage on Mobile Phones among Low-Income Urban Youth in South Africa.* MA Thesis University of Cape Town. Accessed 22 June 2015.

Landis, R.B. (2000). *'Academic Success Strategies'. In Studying Engineering: A Road Map to a Rewarding Career (2nd ed.).* Los Angeles: Discovery Press.

Lankshear, C. and Knobel, M. (2011). *New Literacies: Everyday Practices and Social Learning.* Berkshire: McGraw-Hill International.

Lave, J. and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation.* Cambridge: Cambridge University Press.

Levy, R. (2011). Young Children, Digital Technology and Interaction with text. In Thomas, M. Deconstructing *Digital Natives: Young People, Technology and New Literacies*. New York: Routledge.

Lewis, S. C., Zamith, R. and Hermida, A. (2013). Content Analysis in an era of Big Data: A Hybrid Approach to Computational and Manual Methods. *Journal of Broadcasting & Electronic Methods*, 57(1), 34-52.

Ling, R. (2010). Texting as a Life Phase Phenomenon. *Journal of Computer-Mediated Communication*, *15*, 2797–292.

Ling, R. (2012). *Taken for Grantedness: The Embedding of Mobile Communication into Society.* Cambridge: MIT Press.

Livingstone, D. (1999). Exploring the Icebergs of Adult Learning: *Findings of the First Canadian Survey of Informal Learning Practices.* CJSAE. 13(2).

Livingstone, S., Haddon, L., Gorzig, A. and Olafsson, K. (2001). *EU Kids Online: Final Report.* EU Kids Online, London School of Economics and Political Science, London.

Mascheroni, G., Vincent, J., and Jimenez, E. (2015). "Girls are Addicted to Likes so They Post Semi-Naked Selfies": Peer Mediation, Normativity and the Construction of Identity Online. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*,9(1).

Meelissen, M. and Drent, M. (2007) Gender Differences in Computer Attitudes: Does School Matter. *Computers in Human Behaviour*, 24, 969-985.

Mellstrom, U. (2013). The Intersection of Gender, Race and Cultural Boundaries or Why is Computer Science in Malaysia Dominated by Women? In Wyer, M., Barbercheck, M.,

Cookmeyer,D., Ozturk, H. and Wayne, M. (Eds.), *Women, Science and Technology: A Reader in Feminist Science Studies*. New York: Routledge.

McGowan, W. (2013). The Internet and Research. In Punch, K. F. *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: SAGE Publications.

McPherson, M., Smith-Lovin, L. and Cook, J. M. (2001). Birds of a Feather: Homophily in Social Networks. *Annual Review of Sociology,* 27, 415 – 444.

Merriam, S. B. (2009). *Qualitative Research: A Guide to Design and Implementation*. San Francisco: John Wiley and Sons.

Miller, T., Mauthner, M., Birch, M. and Jessop, J. (2012). *Ethics in Qualitative Research, Second Edition.* London: SAGE Publications.

Mills, A. J., Durepos, G. and Wiebe, E. (2009). *Encyclopaedia of Case Study Research*. London: SAGE Publications.

Organisation of Economic Co-Operation and Development. (2008). *Encouraging Student Interest in Science and Technology Studies.* Paris: OECD Publishing.

Oliver, M. (1997). CHAPTER 2: Emancipatory Research: Realistic Goal or Impossible Dream? In Barnes, C. and Mercer, G. *Doing Disability Research*. Leeds: The Disability Press.

Olivier, J. (2012). Youth Pulling Themselves and Each Other Out of Poverty through Peer Learning and Support. *Carnegie III Conference* September 2012.

Palfrey, J. and Gasser, U. (2013). *Born Digital: Understanding the First Generation of Digital Natives*. New York: Basic Books.

Patton, M. Q. (2014). *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. Thousand Oaks: SAGE Publications.

Perrin, A. and Duggan, M. (2015). *Americans' Internet Access: 2000-2015*. Pew Research Centre, June 2015.

Porter, G., Hampshire, K., Milner, J., Munthali, A., Robson, E., De Lannoy, A., Bango, A., Gunguluza, N., Mashiri, M., Tanle, A. and Abane, A. (2016). Mobile Phones and Education in Sub-Saharan Africa: From Youth Practice to Public Policy. *Journal of International Development*, 28, 22-39.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, MCB University Press, 9(5).

Punch, K. F. (2013). *Introduction to Social Research: Quantitative and Qualitative Approaches.* London: SAGE Publications.

Rettberg, J. W. (2014). *Seeing Ourselves Through Technology: How We Use Selfies, Blogs and Wearable Devices to See and Shape Ourselves*. Hampshire: Palgrave MacMillan.

Sawhney, N. (2009). *Voices Beyond Walls: The Role of Digital Storytelling for Empowering Marginalized Youth in Refugee Camps*. IDC Workshops.

Schugurensky, D. (2000). The Forms of Informal Learning: Towards a Conceptualisation of the Field. *WALL Working Paper*, 19.

Scruggs, T. E. and Mstropieri, M. A. (2006). *Applications of Research Methodology*. Oxford: Emerald Group Publishing.

Sefton-Green, J. (1998). Digital Visions: Children's Creative Uses of Digital Technologies. In Sefton-Green, J. and Buckingham, D. *Digital Diversions: Youth Culture in the Age of Multimedia.* London: Routledge.

Sefton-Green, J. (2004). *Literature Review in Informal Learning with Technology Outside School*. A NESTA Futurelab Series - Report 7.

Sefton-Green, J. (2004a). *Digital Diversions: Youth Culture in the Age of Multimedia*. London: Routledge.

Seidman, I. (2013). *Interviewing as Qualitative Research: A Guide for Researchers in Education and Social Sciences*. New York: Teachers College Press.

Shipman, M. D. (2014). *The Limitations of Social Research.* New York: Routledge.

Skuse, A., & Cousins, T. (2008). Getting Connected: The Social Dynamics of Urban Telecommunications Access and Use in Khayelitsha, Cape Town. *New Media & Society*, 10(1), 9–26.

Spaull, N., Buger, R., Burger, C., Van der Berg, S., van Wyk, C. and Dzivakwi, R. (2012). *Against the Odds: Evaluation of Ikamva Youth Programme*. Stellenbosch: Department of Economics, Stellenbosch University (2012).

Spaull, N. (2015). *Schooling in South Africa: How Low-Quality Education Becomes a Poverty Trap.* Research on Socio-Economic Policy, Stellenbosch University.

Stats SA. (2012). Census 2011.

Stommel, M. and Wills, C. (2004). *Clinical Research: Concepts and Principles for Advances Practice Nurses.* Philadelphia: Lippincott Williams and Wilkins.

Subrahmanyam, K. and Smahel, D (2010). *Digital Youth: The Role of Media in Development*. New York: Springer.

Swartz, S. (2011). Going Deep and Giving Back: Strategies for Exceeding Ethical Expectations when Researching amongst Vulnerable Youth, *Qualitative Research,* 11 (1).

Sweetman, C. (1998). *Gender and Technology*. Oxford: Oxfam.

Tapscott, D. (2008). *Grown up Digital: How the Net Generation is Changing Your World.* Michigan: McGraw-Hill.

Teddie, C. and Tashakkori, A. (2009). *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioural Sciences*. London: SAGE Publications.

Thinyane, A. (2010). Are Digital Natives a World-Wide Phenomenon? An investigation into South African First Year Students' Use and Experience with Technology. *Computers and Education*, 55, 406-414.

Tjong, S. H. S., Weber, I. and Sternberg, J. (2003). Mobile Youth Culture: Shaping Telephone Use in Australia and Singapore. *ANZCA03 Conference*.

Tomas, D. (2000). The Technophilic Body: On Technicity in William Gibson's Cyborg Culture, in Bell, D. and Kennedy, B (Eds.) *The Cybercultures Reader.* London: Routledge, 175-189.

UN Women (2014). *Commission on the Status of Women*, fifty-eighth session, 18 March 2014.

Van Maanen, J. (1979). *Qualitative Methodology*. London: SAGE.

Vanden Abeele, M. M. P. (2015). Mobile Youth Culture: A Conceptual Development. Mobile *Media and Communication*, 1-17.

Walton, M. (2014). Mobile Literacies. Messaging, Txt and Social Media in the m4Lit Project. In Archer, A. and Newfield, D. *Multimodal Approaches to Research and Pedagogy: Recognition, Resources and Access*. New York: Routledge.

Walton, M. and Donner, J. (2012). Public Access, Private Mobile: The Interplay of Shared Access and the Mobile Internet for Teenagers in Cape Town. *Global Impact Study Research Report Series*. Cape Town, South Africa: University of Cape Town.

Walton, M., Hassreiter, S., Marsden, G and Allen, S. (2012). *Degrees of Sharing: Proximate Media Sharing and Messaging by Young People in Khayelitsha*. In Proceedings MobileHCI, 403-412, San Francisco, USA.

Walton, M. and Pallitt, N. (2012). Grand Theft South Africa: Games, Literacy and inequality in consumer childhoods, *Language and Education*, 26(4). 347-361.

Watson-Gegeo, K. A. (1999). Classroom Ethnography. In Hornberger, N. H. and Corson, D. (Eds.), *Research Methods in Language and Education*. London: Springer Science and Business Media.

Weber, S. and Mitchell, C. (2008). Imagining, Keyboarding, and Posting Identities: Young People and New Media Technologies. In Buckingham, D. (Ed.), *Youth, Identity, and Digital Media*. Cambridge, Massachusetts: The MIT Press.

Wendt, B. (2014). *The Allure of the Selfie.* Amsterdam: Institute of Networked Cultures.

Whitehead, T. L. (2005). Basic Classical Ethnographic Research Methods. *Ethnographically Informed Community and Cultural Assessment Research Systems* (EICCARS) Working Paper Series, July 2005.

Williams, A. A. and Marquez, B. A. (2015). The Lonely Selfie King: Selfies and the Conspicuous Prosumption of Gender and /Race. *International Journal of Communication*, 9, 1775-1787.

Wilska, T. (2003). Mobile Phone Use as Part of Young People's Consumption Styles. *Journal of Consumer Policy*, 26(4) 441-463.

8. Appendices

Appendix A

WEEKLY QUIZ

What different kinds of code do you already know?

_____

In Processing, how do we draw different colours?

_____

Can you remember the code for some colours?

_____

In Processing, how do we use code to draw shapes?

_____

Can you remember some code for shapes?

_____

What is a pixel?

_____

How many pixels are there in a megapixel?

_____

Draw a diagram showing how you think the Internet works

Draw a diagram showing how you think Bluetooth works

Draw a diagram showing how you think wifi works

What do you think of the PirateBox (Creative Code – Share Freely)?

_____

Did you share Lungile's story with anyone? If so, whom?

_____

Appendix B

CREATIVE CODE QUESTIONNAIRE

Name _____ Pseudonym _____

Age ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 ☐ 21 GRADE _____

Gender ☐ M ☐ F

Where were you born?_____

Technology Access

	My own device – exclusively for my own use	I share it with others but can use it anytime I need it	Limited or difficult to access – say where	No access
Desktop computer	☐	☐		☐
Laptop computer	☐	☐		☐
Cellphone	☐	☐		☐
Tablet	☐	☐		☐
Other (please explain)				

When did you own your first mobile phone? Age _____

What model of mobile phone do you have now? _____

What cellphone apps do you use most often? _____

What do you spend per week on airtime? _____ Rand

Do you use 'Please call me's' ☐ several times a day ☐ at least once a day ☐ every few days ☐ rarely

How often do you use Bluetooth? ☐ several times a day ☐ at least once a day ☐ every few days ☐ rarely

How often do you use the internet from:

	Never	A few times a year	At least once a month	At least once a week	Daily or almost daily
A computer in an internet cafe					
A computer in a library/Ikamva Youth					
A computer at school?					
A computer at a friend's house?					
Your own cell phone?					
Someone else's cell phone?					

Overall, how often do you do each of the following, using either your phone or a computer?

	Never	A few times a year	At least once a month	At least once a week	Daily or almost daily
Email					
Instant messaging or chat, including Whatsapp, MXit , FB chat					
Browse/Surf/Search/Google					
Facebook, Twitter, Instagram					
Download music – internet/online					
Bluetooth music or files from a friend					
Play games on a phone					
Read news on the internet/online					
Take a photo of yourself (selfie)					
Write computer code (except this class)					

Who supports you (buys food and pays for clothing etc)

_____

What is your parents' or caregivers' occupation?

Mother _____

Father _____

Other caregiver (specify) _____

Where do you live?

	I stay with my parent/s	I stay with extended family (grandparents, auntie, etc)	Other – please specify
Brick house	☐	☐	☐
Flat	☐	☐	☐
Shack/informal housing	☐	☐	☐
Backyard shack	☐	☐	☐
Other (please explain)			

'Coding is more appropriate for men than for women' ☐ I strongly disagree ☐ I strongly agree ☐ It does not bother me

What would you like to do with the content you created in the Creative Code Workshop?

	Print them	Copy to own phone	Share using Bluetooth	At least once a week	Post on Facebook/Twitter
Drawings					
Selfies					
Photos					
Digital stories/game					

How much do you know about technology? (1 is a little, 5 is a lot)

About Smartphones	About Photos	About Internet	About Facebook	About Computers
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

How much do the people in your life know about technology? (1 is a little, 5 is a lot)

	About Smartphones	About Photos	About Internet	About Facebook	About Computers
1	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
2	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
3	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
4	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
6	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
7	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
8	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
My teacher (m)	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
My teacher (f)	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Other:	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

What is the most important thing you've learned from each person in your life about technology?

1	
2	
3	
4	
5	
6	
7	
8	
My teacher (male)	
My teacher (female)	
Other:	

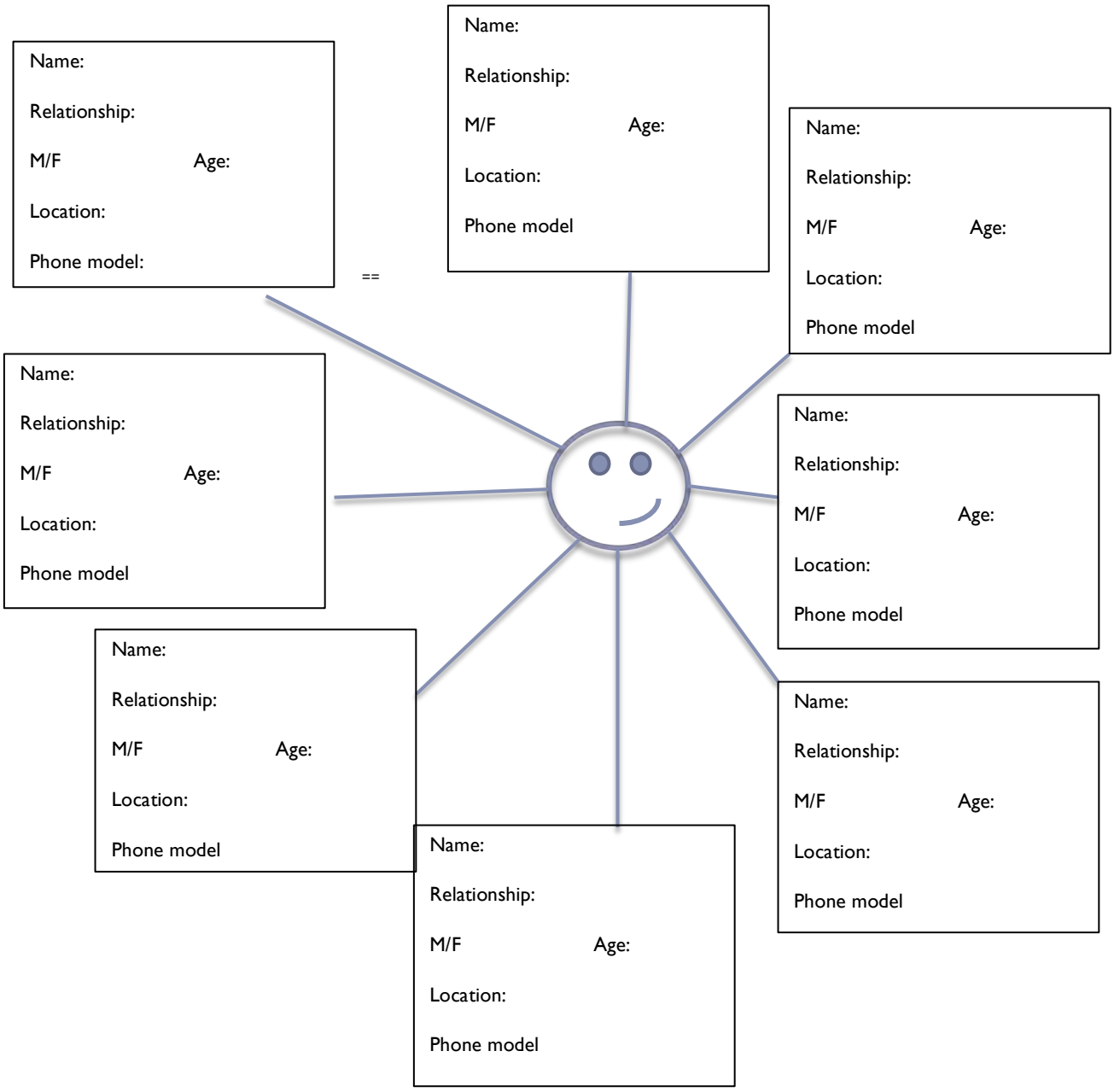
List any careers you know about which involve the use of technology

This is a career which involves the use of technology	How I feel about this career

What do you feel about any dangers involved with the use of technology?

What dangers may be involved with using technology?	How I learned about this danger

Who are the most important people in your life? Tell us a bit more about them in the diagram below:



Appendix C

CREATIVE CODE QUESTIONNAIRE (Follow-up questions)

Name: _____

Age: _____ Grade: _____

Gender: _____

Phone: _____

Who do you ask for help when your phone breaks? Why?

Who do you ask for help when you don't know how to do something on the Internet? Why?

Do your teachers help you with technology? What do they help you do?

What person in your life knows the most about technology?

How do you feel when you don't know something about technology?

Do you enjoy taking selfies?

How do you feel about people working in technology-fields – like computer programmers, engineers?

Who would you go to for help you with tech?